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ARMY MEDICAL DEPARTMENT

REPORT

FOR THE YEAR 1887;

WITH APPENDIX.

VOLUME XXIX.

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1889.

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TO THE RIGHT HONOURABLE

THE SECRETARY OF STATE FOR WAR.

SIR,

I HAVE the honour to submit the accompanying Report on the Health and Sanitary Condition of the Army for 1887.

I have the honour to be,
SIR,
Your most obedient
Humble Servant,
T. CRAWFORD,
Director-General.

MEDICAL DIVISION, WAR OFFICE,
May 1889.

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ARMY MEDICAL DEPARTMENT REPORT FOR 1887.

STATISTICAL REPORT.

Troops at Home and Abroad.

THE average annual strength of the troops serving at home and abroad in 1887, as computed from the returns received by the Army Medical Department, was 194,037 warrant officers, non-commissioned officers and men (exclusive of the Royal Malta Fencible Artillery, the 1st and 2nd West India Regiments, and the Gun Lascars at Ceylon, and at Hong Kong, Corps which are recruited locally); the admissions into hospital in this force were 191,104 and the deaths 1,732. The rates represented by these numbers are for admissions into hospital 984·9 and for deaths 8·84 per 1,000 of the average annual strength, the latter being calculated on a strength of 195,932, which includes detached men.

The statistics of some of the most important of the results of sickness, in every Command in which the troops were stationed, are exhibited in the following Table :—

1887.

White Troops.	Average Strength.	Admitted into Hospital.	Died.	Sent Home as Invalids.	Discharged as Invalids.	Constantly non-effective from Sickness.
Troops at Home and Abroad	**194,037**	**191,101**	**1,732**	**1,989**	**2,575**	**10,387·07**
United Kingdom	101,114	79,557	529	—	1,525	4562·23
Gibraltar	4,614	3,111	29	99	33	175·77
Malta	5,499	3,011	36	65	39	197·63
Cyprus	472	335	3	9	7	17·67
Egypt	5,272	5,821	81	141	91	365·19
Canada	1,282	801	7	14	11	45·59
Bermuda	1,183	957	15	35	27	49·84
West Indies	1,121	1,252	13	17	13	59·17
South Africa and St. Helena	3,490	3,097	28	91	48	205·71
Mauritius	400	637	8	26	15	33·15
Ceylon	1,077	1,227	16	14	10	72·04
China and Straits Settlements	2,266	2,254	13	34	14	98·08
India	63,942	86,892	939	1,445	742	4505·00
On board Ship	2,305	2,649	15	—	—	—

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Troops at Home and Abroad.

1887.

White Troops.	Ratio per 1,000 of Strength. Admitted.	Died.	Sent Home as Invalids.	Discharged as Invalids.	Constantly non-effective from Sickness.	Average sick-time to each Soldier.	Average duration of each case of Sickness.
	*	†	‡	§	‖	Days.‖	Days.‖
Troops at Home and Abroad	**984·9**	**8·84**	**21·95**	**13·30**	**54·17**	**19·77**	**20·11**
United Kingdom	786·8	5·13	—	14·80	45·12	16·47	20·93
Gibraltar	674·2	6·29	21·24	7·15	38·09	13·90	20·62
Malta	547·5	6·54	11·82	7·09	35·94	13·12	23·95
Cyprus	709·8	6·36	19·07	14·83	37·43	13·66	19·25
Egypt	1104·1	15·36	26·74	17·26	69·26	25·28	22·90
Canada	624·8	5·46	10·92	8·58	35·56	12·98	20·77
Bermuda	808·9	12·68	29·59	22·82	42·13	15·38	19·01
West Indies	1116·9	11·60	15·17	11·60	52·78	19·26	17·25
South Africa and St. Helena	887·4	8·02	26·07	13·75	58·94	21·51	24·24
Mauritius	1592·5	20·00	65·00	37·50	82·87	30·25	18·99
Ceylon	1139·3	14·86	13·00	9·29	66·89	24·41	21·43
China and Straits Settlements	994·7	5·74	15·00	6·18	43·28	15·80	15·88
India	1851·1	14·68	22·60	11·60	70·45	25·72	19·03
On board Ship	1149·2	6·50	—	—	—	—	—

* Calculated on strength, excluding men detached (1,895).
† Calculated on strength, including men detached.
‡ Calculated on strength, excluding United Kingdom and troops on board ship.
§ Calculated on strength, including men detached, and excluding troops on board ship.
‖ Calculations exclude men detached and troops on board ship.

1877 to 1886.

White Troops.	Aggregate strength for 10 years.	Admitted into Hospital.	Deaths.	Sent Home as Invalids.	Discharged as Invalids.	Constantly non-effective from Sickness.
Troops at Home and Abroad	**1,729,173**	**1,871,662**	**20,704**	**31,206**	**35,798**	**91,325**
United Kingdom	874,615	743,385	6,128	—	22,011	39,644
Gibraltar	45,489	37,933	322	1,518	642	2,267
Malta	49,068	41,720	488	1,387	745	2,509
*Cyprus	5,487	8,442	95	226	75	396
†Egypt	35,020	45,856	1,036	3,379	1,084	2,688
Canada	15,995	11,636	86	393	302	615
Bermuda	16,451	10,387	130	265	170	560
West Indies	9,469	8,889	158	262	141	437
South Africa and St. Helena	55,980	46,498	2,129	3,264	1,234	2,869
Mauritius	3,811	8,750	78	176	58	332
Ceylon	9,640	11,272	141	348	141	580
China and Straits Settlements	19,184	20,486	185	776	346	972
India	559,899	852,145	9,528	19,212	8,849	37,456
On board Ship	29,065	24,268	205	—	—	—

* For nine years only. † For four years only.

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1877 to 1886.

Troops at Home and Abroad.

White Troops.	Ratio per 1,000 of Strength.					Average sick-time to each Soldier.	Average duration of each case of Sickness.
	Admitted.	Died.	Sent Home as Invalids.	Discharged as Invalids.	Constantly non-effective from Sickness.		
						Days.	Days.
Troops at Home and Abroad	**1082·4**	**11·75**	**37·80**	**20·65**	**53·72**	**19·60**	**18·04**
United Kingdom -	849·9	6·75	—	24·25	45·32	16·54	19·46
Gibraltar - -	833·9	7·08	33·37	14·11	49·84	18·19	21·81
Malta - -	850·2	9·94	28·26	15·18	51·18	18·66	21·95
*Cyprus - -	1538·5	17·31	41·19	18·67	72·17	26·34	17·12
†Egypt - -	1309·4	29·58	96·49	30·95	76·76	28·02	21·40
Canada - -	727·5	5·37	24·57	18·88	38·45	14·03	19·29
Bermuda - -	631·4	7·90	16·11	10·33	34·04	12·42	19·68
West Indies - -	938·7	16·68	27·67	14·89	46·15	16·84	17·94
South Africa and St. Helena - -	830·6	38·03	58·31	22·04	51·25	18·71	22·52
Mauritius - -	2296·0	19·15	46·18	15·22	87·12	31·80	13·85
Ceylon - -	1169·3	14·63	36·10	14·63	60·17	21·96	18·78
China and Straits Settlements -	1067·8	9·64	40·45	18·04	50·67	17·32	18·49
India - - -	1521·9	17·02	34·31	15·80	66·90	24·42	16·04
On board Ship -	834·8	7·08	—	—	—	—	—

* For nine years only. † For four years only.

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II.—ON THE HEALTH OF THE TROOPS SERVING IN THE UNITED KINGDOM.

Sickness and Mortality.

United Kingdom.

The average strength of warrant officers, non-commissioned officers and men serving in the United Kingdom during the year, as shown in the returns furnished by medical officers, was 101,114. In addition to this there were a certain number of men detached from their corps, the average number of whom is computed to have been 1,895. The principal statistics of sickness and mortality among these troops as a whole, and also among those quartered in the three divisions of the kingdom during the year, are shown in the following table :—

—	Average Strength.	Admissions.	Deaths.	Invalids.	Constantly Sick.
England and Wales - -	72,329	58,889	376	1,153	3412·17
Scotland - - - -	3,635	2,415	25	56	119·98
Ireland - - - -	25,150	18,253	128	317	1030·06
Total - - -	101,114	79,557	529	1,525	4562·23

(*continued.*)

—	Ratios per 1,000.				Average Sick Time to each Soldier.	Average Duration of each case of Sickness.
	Admissions.	Deaths.	Invaliding.	Constantly Sick.		
					Days.	Days.
England and Wales - -	814·2	5·20	15·93	47·17	17·22	21·15
Scotland - - - -	664·4	6·87	15·40	33·01	12·05	18·13
Ireland - - - -	725·7	5·09	12·60	40·96	14·95	20·60
Total - -	786·8	*5·13	*14·80	45·12	16·47	20·96

* Calculated on strength, including men detached (1,895).

Comparing these results with the corresponding ratios in the preceding year it is found that in the case of England and Wales there is a decline in the amount of sickness and mortality, the admission ratio being lower by 49·9 per 1,000, the death rate by 1·91, and the constantly sick rate by 1·84. The average duration of each case of sickness was longer by ·45 of a day, and the average sick time to each soldier shorter by ·67 of a day.

In Scotland the ratio of admission is lower than that of the preceding year by 42·5 per 1,000, and the ratio constantly sick is fractionally lower, but the

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mortality ratio has increased by 2·20 per 1,000. The average sick time to each soldier was shorter by about a quarter of a day, and the average duration of each case of sickness longer by ·70 of a day. *United Kingdom.*

In Ireland the admission ratio declined from that of the preceding year by 80·4 per 1,000, the death rate by 1·28, and the constantly sick rate by 2·82. The average sick time to each soldier was shorter by about one day, and the average duration of each case of sickness longer by three quarters of a day.

Taking the United Kingdom as a whole the ratio of admission is lower than that of the previous year by 56·5 per 1,000, the death rate by 1·55, and the constantly sick rate by 1·96. The average sick time to each soldier was shorter by nearly three quarters of a day, and the average duration of each case of sickness longer by rather over half a day. In comparison with the average of the results for the preceding 10 years the decrease in admission ratio amounts to 63·1 per 1,000, and that in the mortality rate to 1·62, but in the ratio of constant inefficiency through sickness scarcely any difference is observed. In the average sick time to each soldier there is also scarcely any difference, but the average duration of each case of sickness is longer by nearly a day and a half.

The total loss for the year by death and final discharge of men from the service by invaliding was 2,058, equal to a ratio of 19·98 per 1,000, which is lower by 4·34 than the corresponding rate in the previous year.

The admissions, deaths, invaliding, &c., according to the different groups and orders of diseases, are shown for the whole United Kingdom in Abstract I., and for its three great divisions, England and Wales, Scotland, and Ireland, in Abstracts A, B, and C, which are now substituted for Abstracts containing statistics of the different administrative military districts given in former years.

General Diseases.—*Diseases dependent on morbid Poisons.*—Under the head of *eruptive fevers* 745 admissions and 10 deaths are returned, being in the ratios of 7·4 and ·10 per 1,000, which are higher by ·9 and ·08 respectively than the corresponding ratios in the preceding year, and than the average ratios for the previous five years by 1·8 and ·05 respectively.

The admissions for *small-pox* were seven in number, and there was one death; in the preceding year there were 11 cases and no deaths, and the average number of cases in each year of the previous five was 12 and of deaths ·8. Of the cases which occurred in the year under report two were at Sheffield, where the disease was very prevalent among the civil population, two at Portsmouth, and one case at Gosport, Chatham, and the Curragh respectively; the fatal case was at Portsmouth, and was that of an orderly who had been in attendance on a case of this disease.

Scarlet fever caused 185 admissions and 8 deaths; in the previous year there were only 47 admissions and no deaths. The admission ratio, 1·8 per 1,000, is higher than the previous year's rate by 1·3, and than the average rate for the preceding five years by ·5. Every district was affected with the disease to some extent, and there were cases at 23 stations in England, 2 in Scotland, and 6 in Ireland. The greatest number of cases in any station was 34 at Woolwich, the next 25 cases at Chatham, and then 23 cases in London, nearly half of the total number of cases having occurred in these three stations, in which the disease was also very prevalent among the civil population. At Aldershot 18 cases were admitted, at Templemore 13, at Dublin 9, at Newcastle-on-Tyne 8, at Caterham and Kilkenny 7 each, at Portsmouth 6, at Dover 5, at Weedon and Shorncliffe 3, at Hounslow, Ashton-under-Lyne, Preston, York, Devonport, and Belfast, 2 respectively, and the remaining cases were single ones at 12 different stations. The fatal cases were 2 at Aldershot, Chatham, and Newcastle-on-Tyne respectively, 1 in London, and 1 at Belfast.

Measles was somewhat less prevalent than in the preceding year, the admission ratio, 2·5 per 1,000, showing a decline of ·6; it is, however, just above the average rate of the previous five years. With the exception of that of Chatham and the Channel Islands every district was affected in some degree. The total number of cases was 252, and the stations chiefly affected were Aldershot, where 67 cases and one death occurred, Dublin 35 cases, and London 25; it will be noticed that half of the cases occurred in these three stations. The remaining half of the cases were scattered over 38 different stations, among the chief of which were Edinburgh with 12 cases, Portsmouth and Dover with 11

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United Kingdom.

cases each, and Woolwich 10 cases. In the rest of the stations the cases did not reach double numbers.

Epidemic rose rash was returned in 33 instances, of which 16 occurred at Colchester, 6 at Shrewsbury, 3 at Woolwich, 2 at Gravesend, 2 at Cork, and 1 at Pontefract, Devonport, Queenstown, and Downpatrick respectively. In the preceding year only 11 admissions were recorded.

Of the remaining 268 admissions for eruptive fevers 6 were cases of chicken-pox and 262 cases of cow-pox, as compared with 7 and 247 respectively in the foregoing year.

Enteric fever caused 137 admissions and 28 deaths, as compared with 145 and 43 respectively in the previous year. The admission ratio, 1·4 per 1,000, is less by ·2 than in the preceding year, but is higher by ·1 than the average ratio for the previous 10 years; while the mortality ratio, ·27 per 1,000, is lower by ·19 than in the previous year, and just below, by ·02, the decennial average rate. The per-centage of deaths to attacks was 20·4, a good deal lower than in the preceding year, when it reached 29·6; it is also below the average per-centage for 10 years by 3·2. Of the total number of cases 61, with 16 deaths, equal to ratios of ·8 and ·22 per 1,000 respectively, occurred in England and Wales, 3 cases and 1 death in Scotland, and 73 cases with 9 deaths, in the respective ratios of 2·9 and ·36 per 1,000, in Ireland. In England all the different military districts were affected to some extent with the exception of that of Chatham, which, it is observed, has also had immunity from this disease for the three previous years. In Ireland all four districts were affected. The number of stations at which the disease occurred was 39. The greatest number of cases in any one station was 50 in Dublin, among these were 4 deaths; in the preceding year there were 18 cases and 10 deaths. Of these cases as many as 23, or very nearly half, occurred in the Royal Barracks alone; two of these proved fatal. The continued prevalence of enteric fever in these barracks was the cause of the appointment of a Special Commission to conduct an exhaustive sanitary inspection of the barracks with a view of determining the existence of any special defects likely to cause this disease, and of making such recommendations as might seem advisable; this will be again alluded to elsewhere. 9 cases, one of which was fatal, were admitted from Pigeon House Fort, and 5 from Ship Street Barracks, of which one also was fatal. At Arbor Hill Hospital 4 orderlies were attacked, two of whom had been in attendance on cases of this disease; and of the other two it is said the origin of their illness may have been traceable to defective sewerage. 3 cases came from Beggars' Bush Barracks, 2 from Richmond Barracks, and 1 from Linen Hall Barracks. There was also 1 case admitted from lodgings, 1 from furlough, and 1 on arrival from another station. In very few of these cases could any definite cause be traced, though some were doubtless due to defects in barracks, and some also may have been contracted outside barracks. In London 10 admissions and 2 deaths occurred during the year; three of these, it is said, were imported from Dublin, one case was probably due to defective drainage, and one was that of a recruit just enlisted; for the other cases no causation is shown. At Belfast 6 cases occurred, contracted, it is said, at Hollywood Camp, and probably due to contamination of the water supply. There were also 6 cases at Aldershot, some of which were supposed to be due to a defective condition of the sub-ventilation of the huts. 5 cases occurred at Shoeburyness, of which 4 proved fatal; these were ascribed to the existence of a sewer from the village opening on to the foreshore near the huts. 5 cases also occurred at the Curragh, of these four must have been contracted in the camp, but one was traced to another station; 2 of these proved fatal. At Parkhurst there were 4 cases and 2 deaths, probably due to water impurity; and there were also 4 cases and 1 death at Portsmouth for which no cause is reported. At Hounslow there were 3 cases, all of which, it is said, were imported; at Manchester there were 3, and at Dover there were also 3 cases, 2 being fatal, of which 2 were attributed to defective drainage, but for the other no cause could be found. 2 cases occurred at Great Yarmouth, one of which proved fatal; the disease is believed to have been due to an impure condition of the water supply; at Pembroke Dock there were 2 cases and 1 death, one case probably due to impure water, and the other contracted on furlough; and at Glasgow, Enniskillen, and Kilkenny there were 2 cases and 1 death respectively for

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which no cause is assigned. There were 2 cases at Guernsey, probably contracted in the town, 2 at Woolwich, believed to have originated elsewhere; 2 at Dundalk, one of which was contracted in Dublin, and 2 at Limerick, said to have been contracted outside barracks, also 2 at Gosport, cause not known. There was one case, which proved fatal, at Tipperary, this was believed to have been contracted out of barracks, and there were single cases, which recovered, at Fleetwood, due to defective drainage, at Cardiff, due to impure water, at Alderney, said to have been probably due to excess of rainfall after long drought, at Guildford, Leeds, and Liverpool, contracted away from the station, at Galway, Haulbowline, and Fermoy, believed to have originated out of barracks, and at Newcastle-on-Tyne, Piershill, York, Harwich, Winchester, Netley, Sandown, and Devonport respectively; of these the origin could not be discovered or has not been recorded. Three deaths of men on furlough or detached from their corps were also reported. *United Kingdom.*

Other Continued Fevers caused 689 admissions, equal to 6·8 per 1,000, as compared with 9·1 in the previous year. The ratio is also considerably lower than that of the average of the preceding five years. No death occurred during the year, while in that preceding 8 were recorded. With two exceptions, a case of typhus fever at Cork and one of cerebro-spinal fever at Hilsea, all the cases were simple continued fever. The ratios of admission for the three great divisions of the kingdom were, for England 5·2 per 1,000, Scotland 5·8, and Ireland 11·7, as compared with 7·4, 12·4, and 13·3 per 1,000 respectively in the preceding year. The districts which show the greatest prevalence of these fevers are the three large Irish districts, Dublin, Belfast, and Cork, the admission ratios being 14·1, 12·5, and 12·4 per 1,000 respectively; while the lowest ratios are found in the Woolwich district ·8, the Aldershot division 3·3, and the South-eastern district 3·9 per 1,000. Compared with similar results for the preceding year a decrease of admission ratio is observed in all the different administrative districts except two, the Eastern district and the Channel Islands, in which a slight increase is observed.

Dysentery caused the admission of 96 men, and there were 3 deaths, being in the ratios of ·9 and ·03 per 1,000; in the previous year the admission ratio was the same, but the death rate was ·06. Of the admissions, 91 occurred in England, 4 in Ireland, and 1 in Scotland. The greatest number of cases in any district was 20 in the South-eastern, 15 of these occurred at Shorncliffe; there were 16 cases in the Home district, 12 being at Hounslow, these are said to have been cases which originated in India; there were also 16 cases in the Southern district, 9 at Gosport, most of them contracted abroad, and there were 11 cases in the Western district, all at Devonport, and which are said to have occurred in old soldiers recently returned from Egypt. The remaining cases were in small numbers in different stations scattered over the various districts, with the exception of that of Belfast and the Channel Islands.

The admissions returned under the head of *other diseases* in this sub-group were 134 in number, and there was one death. The ratios of admission and mortality were 1·3 and ·01 per 1,000, as compared with 2·1 and ·01 per 1,000 in the previous year. Among the cases treated were 7 of diphtheria, with one death; in the previous year there were 5 cases, one fatal; 2 of the cases in the year under report occurred at Aldershot, and one was fatal; there were also two cases at Reading, these were believed to have been dependent on insanitary causes. There was one case in Newport (Mon.), where the disease was very prevalent in the vicinity, one at Golden Hill Fort, contracted in the neighbouring village, and one at Woolwich, the cause of which is not recorded. The remaining admissions were chiefly for influenza or mumps. Of the former there were 51 cases, half of which occurred in the Northern and Belfast districts. There were 76 admissions for mumps, the South-eastern district showing 22 cases and the Southern 13, the remainder being scattered over all the districts except the Curragh and the Channel Islands.

Malarial Fevers.—The admissions for these fevers numbered 425, being in the ratio of 4·2 per 1,000 of strength, which is below the corresponding rate in the preceding year by 1·9, and the average rate for the previous five years by 3·6. The admission ratio for England was 5·1, that for Scotland 2·5, and that for Ireland 1·9 per 1,000, all being somewhat lower than in the preceding year. The highest ratios of prevalence in any part of the kingdom were in the

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Woolwich and Southern districts, 10·7 and 9·7 per 1,000 respectively, followed by the South-eastern and Eastern districts with 7·2 and 7·0 respectively. All the Irish districts show but little prevalence of this disease, the lowest ratio being in the Curragh, ·8 per 1,000, Belfast having 1·6, and Dublin and Cork each 2·3. Compared with the previous year the decline in prevalence of these fevers has been general through the different districts, except in the Woolwich and Eastern districts and in the Channel Islands, in which they were somewhat more frequent. Out of the total number of admissions 7 were cases of remittent fever, of which two occurred at Aldershot, two at Belfast, and one at Dover, Hythe, and Glasgow respectively.

Septic diseases.—The admissions under this sub-group were 261 in number, and there were 9 deaths, being in the ratios of 2·6 and ·09 per 1,000, the corresponding ratios in the preceding year having been 2·7 and ·05 per 1,000 respectively. Five of the admissions were for pyæmia, one for phagedœna, and the remainder for erysipelas. The cases of pyæmia occurred at Preston, Canterbury, Dublin, London, and Leith respectively, and the last-named two were fatal. The case of phagedœna happened in Dublin. Erysipelas alone was at the rate of 2·5 per 1,000, almost the same as in the previous year, but lower by ·3 than the quinquennial average rate. There were 7 deaths during the year, in the preceding two years no deaths occurred, but the average number for the previous five years was 1·8. All the different districts were affected to some extent, the English districts accounting for 196 cases, the Irish for 51, and Scotland for 8, the ratios of prevalence being 2·7, 2·0, and 2·2 per 1,000 respectively. The greatest number of cases in any one station was 38 at Aldershot, but all these recovered. Two deaths occurred in London, and one death occurred at Oxford, Woolwich, Portsmouth, Brecon, and Exeter respectively.

The next sub-group shows the admissions for *venereal diseases*, the first of which, *primary syphilis*, caused 7,458 admissions, or 73·8 per 1,000, and 6·72 per 1,000 men were constantly sick on this account, as compared with 88·9 and 7·75 per 1,000 respectively in the preceding year. The admission and constantly sick ratios for England alone were 78·3 and 7·21, for Scotland 37·4 and 3·27, and for Ireland 65·8 and 5·81 per 1,000 respectively. Of the different districts Aldershot shows the highest ratio of prevalence of primary syphilis, 132·9 per 1,000, though lower than in the previous year by 33·4. The districts with the next highest ratios of prevalence were the Western and Dublin, 98·5 and 92·8 respectively. The lowest ratio of prevalence was in the Cork district, 33·9 per 1,000, the North British and Eastern districts being next above with 37·4 and 46·1. All the ratios quoted have declined from those of the preceding year, and the only districts in which primary syphilis was more prevalent were Chatham, Belfast, and the Curragh. If to the admissions for primary syphilis those of simple venereal ulcer be added, the ratio of admission for primary venereal sores amounts to 107·3, and that of constantly sick to 9·17 per 1,000; but these are below the corresponding ratios in the preceding year by 11·5 and ·48, and below the average rates for the preceding five years by 10·6 and ·35 per 1,000 respectively. The ratios of admission and constantly sick in England alone were 113·7 and 9·81, in Scotland 71·8 and 5·61, and in Ireland 93·7 and 7·86 per 1,000 respectively. Aldershot shows the highest prevalence of primary venereal sores of any district, the ratio being 156·2 per 1,000, and then the Southern, Home, and Dublin districts with 128·4, 123·9, and 123·8 respectively. The lowest ratio was in the Cork district, 42·1, next the North British, 71·8, and then the South-eastern, 73·4 per 1,000. Compared with the previous year's return, decrease of admission rate has occurred in 10 out of the 15 districts, the greatest decrease being 36·4 in the Dublin and 26·8 in the South-eastern district. Among the instances of increase, the only one marked is 20·9 at the Curragh.

Secondary syphilis showed increased prevalence during the year, the admission ratio, 42·6, and the ratio of constant inefficiency, 3·59 per 1,000, being in excess of the corresponding rates in the preceding year by 9·1 and 1·00, and of the quinquinnial average rates by 13·2 and 1·27 per 1,000 respectively. For England only, the admission and constantly sick rates were 46·2 and 3·91, for Scotland 30·0 and 2·21, and for Ireland 34·3 and 2·86 per 1,000 respectively. The greatest prevalence of secondary syphilis in any district was in the Home district, where the admission ratio was as much as 59·5 per 1,000, in the

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Southern district it was nearly as much, 57·6, the next being at Woolwich, 48·9. The lowest ratio was 23·5 per 1,000 in the Cork district, the next above 29·4, in the Curragh, 30·0 in North Britain, and 32·2 in the Eastern district The increase in prevalence of secondary syphilis was very general throughout the whole kingdom, as every district showed an increase as compared with the return for the preceding year, except the Dublin district, in which there was a slight decline. The most marked instances of increase were 22·8 in the Southern district, 17·4 in the Channel Islands, and 17·2 per 1,000 in the Aldershot division. *United Kingdom.*

Gonorrhœa gave an admission ratio of 103·0 per 1,000, and a ratio of constantly sick of 6·34 per 1,000. These ratios are below the corresponding rates in the preceding year by 11·8 and ·71, and below the quinquennial average rates by 13·5 and ·65 respectively. The admission and constantly sick ratios for England were 107·0 and 6·71, those for Scotland 84·2 and 4·27, and those for Ireland 94·4 and 5·59 per 1,000 respectively. The greatest prevalence of gonorrhœa in any district of the kingdom was in the Channel Islands, the ratio being 153·0 per 1,000, the Dublin and Belfast districts coming next with 128·9 and 127·2; these two districts also showed great prevalence in the preceding year, whilst the lowest ratio in both years was in the Cork district, in the year under review the rate being 56·1 per 1,000, the South-eastern district was next above with 63·9, and the Curragh with 71·2. Compared with the return for the previous year it is observed that the ratios of prevalence in six districts have increased, but in none to any very great extent except the Channel Islands, where the increment was 45·7; decrease occurred in the Dublin district by 50·0, and in the South-eastern by 45·2.

Including all forms of venereal disease, the total number of admissions was 25,574, and the total number of men constantly sick from these diseases 1931·33. The admission ratio, therefore, was equal to 252·9, and the ratio of constant inefficiency to 19·10 per 1,000. Compared with corresponding ratios in the previous year a decline of 14·2 is observed in the admission rate, and one of ·19 in the constantly sick rate, while compared with the similar average ratios for the preceding five years a decrease of 10·9 has occurred in the ratio of admission, but there is a fractional increase in the ratio of constant inefficiency on account of these diseases. With regard to the three great divisions of the kingdom it is calculated that the admission and constantly sick rates for England were 266·9 and 20·43, for Scotland 186·0 and 12·09, and for Ireland 222·4 and 16·31 per 1,000 respectively. Compared with corresponding results in the preceding year, a decline is observed in all three admission ratios, that for Ireland being as much as 38·5, but in each of the other divisions the decrease was slight. The constantly sick ratio for Ireland has also decreased in this comparison by 1·78, but those of England and Scotland have increased by ·27 and 1·64 respectively. The greatest prevalence of venereal disease generally in any part of the kingdom occurred in the Home district, where the ratio was equal to 306·4 per 1,000; prevalence was also great in the Southern and Dublin districts, Aldershot, and Channel Islands, the ratios being 304·9, 299·0, 295·3, and 289·7 respectively. The least prevalence, as in the preceding year, was in the Cork district, the ratio being only 121·7 per 1,000; next above this was 179·9 in the South-eastern, and 185·9 in the North British district. The intermediate ratios were Belfast 277·6, Western 268·5, Woolwich 266·9, Eastern 259·4, Northern 249·8, Chatham 237·7, and the Curragh district 222·1 per 1,000. Compared with the results of the preceding year increase of admission rate has occurred in six districts, the greatest in the Channel Islands 42·3, in the Southern district 32·0, Chatham 26·0, and to some extent in the Curragh, Home, and Woolwich districts; in the remainder there was a decrease most marked in the Dublin district, 90·8, but as shown above venereal disease was still very prevalent there. The amount of decrease in the remaining districts, with the exception of the South-eastern, which was 62·9, was not great.

In the next group of diseases *parasitic affections* caused 72 admissions, chiefly cases of tænia solium; there was one death under this head, due to echinococcus hominis.

Of diseases due to errors in diet *scurvy* was the cause of 14 admissions; in the preceding year the number was 8. Of the total number of cases 9 occurred in Ireland, 3 in England, and 2 in Scotland.

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Under the head of *alcoholism* 326 admissions and 5 deaths are recorded. The admission ratio, 3·2 per 1,000, scarcely differs from that in the preceding year. The ratios for England and Ireland were also 3·2, but that for Scotland was equal to 4·6. Of the total number of cases 298 were cases returned as alcoholism, and the remaining 28 as delirium tremens; among the latter there were 5 deaths.

In the succeeding group of diseases, *debility*, &c., there were 697 admissions and one death; the ratio of admission 6·9 per 1,000 as compared with 8·2 in the preceding year. In England alone the admission ratio was equal to 7·6, in Ireland to 5·4, and in Scotland to 2·8 per 1,000.

In the fourth group of general diseases *rheumatism* was the cause of 3,925 admissions and 3 deaths. The admission ratio was therefore 38·8 per 1,000, which is slightly below the rate in the previous year, and also below the average rate. Out of the total number of cases 383 were cases of rheumatic fever, of which 3 died. The ratio of cases of rheumatic fever was 3·7 per 1,000. The ratio of prevalence of rheumatic affections in England was 40·1, that in Scotland 28·6, and that in Ireland 36·6 per 1,000, all being somewhat lower than the corresponding ratios in the preceding year. The greatest prevalence of rheumatism in any particular district was at Aldershot, where the ratio amounted to 57·8 per 1,000; the next was in the Eastern district, 47·6, and the next in Dublin, 46·2. The lowest ratio of prevalence was 21·5 per 1,000 in the Channel Islands, the South-eastern district showing a ratio nearly as low. Compared with results for the preceding year there is no great difference in the ratios of prevalence in the different districts, except in the instance of Woolwich, where the ratio declined by 15·6 per 1,000.

Tubercular Diseases.—The admissions for these diseases numbered 367, and the deaths 114, being in the ratios of 3·6 and 1·10 per 1,000 respectively. In the preceding year the admission and mortality ratios differed but little, being 3·9 and 1·17 per 1,000. The average rates for the previous five years were 7·4 and 1·65 respectively, but these are not comparable with those for the year under report, as before the new nomenclature of diseases was adopted the ratios included those cases of phthisis pulmonalis which are now returned as pneumonic phthisis among diseases of the respiratory system. In England the admission and death rates for these diseases were 3·9 and 1·06 per 1000, in Scotland 2·2 and ·83, and in Ireland 3·0 and ·83. There is no marked difference in these results as compared with those of the preceding year. The highest admission ratio in any of the districts was 8·5 per 1,000 in the Channel Islands, but this is dependent on a few cases in a comparatively small strength; prevalence was also great in the Home district, 5·7, and in Aldershot 4·9 per 1,000. The lowest ratio was 2·2 per 1,000 in the South-eastern district, and also in the North British, that for Belfast being only just above 2·3. Out of the total number of admissions for tubercular affections, 340 were for tubercular disease of the lungs, and 97 deaths are returned from this disease, and 164 men were invalided.

Other diseases of this group were the cause of 595 admissions and 18 deaths, being in the ratios of 5·9 and ·17 per 1,000 respectively, as compared with 4·8 and ·11 in the preceding year. Among the admissions were 439 for non-malignant new growth with two deaths from cerebral tumour, 20 for malignant disease with 15 deaths, and 6 for diabetes, one case being fatal. The remaining admissions were principally cases of anæmia.

Local Diseases.—*Diseases of the nervous system* caused 896 admissions and 37 deaths, equal to ratios of 8·8 and ·36 per 1,000 respectively. Compared with the corresponding ratios in the preceding year a decline of 1·1 is observed in the rate of admission, and one of ·12 in that of mortality; and compared with similar average ratios for the preceding five years the ratio of admission is lower by 2·3, and that of mortality by ·11 per 1,000. With regard to the great divisions of the kingdom, it is observed that the admission rate was 9·0 and the death rate ·32 in England, in Scotland they were 9·1 and ·27, and in Ireland 8·7 and ·40 per 1,000 respectively. These diseases were most prevalent in the Woolwich district, the ratio being 14·0 per 1,000, next in Dublin, 11·9, and then in the Western district, 11·6. The least prevalence was in the Channel Islands, the ratio being only 3·9, next in the Belfast, 5·5, and then at the Curragh, 5·8. 154 of the admissions were on

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account of mental disease, equal to a ratio of 1·5 per 1,000 as compared with 1·9 in the preceding year. The causes of death were inflammation of the brain or of its membranes 22 cases, apoplexy 6, abscess of the brain 4, paralysis 3, epilepsy 1 case, and general paralysis of the insane 1 case. *United Kingdom.*

Diseases of the Eye.—1,257 admissions are recorded, the ratio being 12·4 per 1,000; in the preceding year the ratio was 13·8, and the quinquennial average rate equals 14·4. In England the ratio was 12·5, in Scotland 9·1, and in Ireland 12·8 per 1,000. The greatest prevalence of ophthalmic affections occurred in the Eastern and Southern districts, in each of which the ratio reached 16·5 per 1,000; below these the ratios varied and declined, until the lowest ratio, 4·1 per 1,000, is found to have occurred in the Woolwich district. Of the total admissions a very large proportion were cases of simple conjunctivitis.

Diseases of other organs of special sense.—Under this head are recorded 719 admissions, 669 being for aural diseases, and the remainder for diseases of the nose. The admission ratio, 7·1 per 1,000, differs only slightly from that in the preceding year, and also from the average. In England these affections were at the rate of 7·4, and in Scotland and Ireland each at the rate of 6·3 per 1,000.

Diseases of the Circulatory System caused 984 admissions and 38 deaths, being in the ratios of 9·7 and ·37 per 1,000 respectively. The admission ratio is higher than that of the preceding year by ·7, but lower than the average ratio for the preceding five years by 1·6. The mortality ratio is lower in each of these comparisons by ·16 and ·15 respectively. The ratio of prevalence of these diseases in England alone was 10·7 per 1,000, a fractional increase on the last year's rate; that in Scotland was 9·9, an increase of 4·9; and that in Ireland 6·8, a fractional decrease. With regard to the prevalence of these affections in the different districts, the highest admission ratio, 14·9 per 1,000, occurred at Aldershot, and was higher than that in the preceding year by 5·6; the next highest ratio was in the Eastern district, 14·1, but it is slightly lower than the corresponding ratio in the previous year. The least prevalence occurred in the Curragh, Belfast, and Chatham districts, the ratios being 4·8, 5·5, and 5·7 respectively; all these ratios have declined from those in the foregoing year. The principal cause of admission was palpitation, 439 cases, equal to 44 per cent. of the total number of admissions under this order. Valvular disease of the heart was next in frequency, 324 cases, or 33 per cent. of the total. The deaths were due to valvular disease of the heart in 17 instances, to aneurysm of the aorta in 8, to fatty degeneration of the heart in 4, to pericarditis in 4, to dilatation of the heart in 2, and to hypertrophy of the heart, endocarditis, and syncope in one instance respectively.

Diseases of the Respiratory System.—Under this head 5,787 admissions and 119 deaths are recorded, being in the respective ratios of 57·2 and 1·15 per 1,000. Compared with the results in the preceding year there is a considerable decline in admission rate, equal to 21·9, and one of ·68 in the death rate, and in comparison with quinquennial average rates a decrease also is observed in the ratios both of admission and mortality, 10·1 and ·19 respectively. The prevalence of respiratory affections in England was equal to a ratio of 60·7 per 1,000, that in Scotland to 42·4, and that in Ireland to 49·4. All these have declined considerably from the corresponding ratios in the previous year, the ratio for Scotland by as much as 36·7, that for England by 21·5, and that for Ireland by 20·8. The mortality rate for England was 1·02 per 1,000, that for Ireland 1·15, and that for Scotland 2·20; the first two being below but the latter above the corresponding rates in the preceding year. The greatest prevalence of respiratory affections was in the Northern district, the ratio being 69·5 per 1,000, the next was at Aldershot, 66·2, followed by the Home district, 62·5. The least prevalence was in the Channel Islands, 38·4 per 1,000, and next at the Curragh, 41·2. North Britain and Cork also had low rates, viz., 42·4 and 42·5 respectively. Decreased prevalence of these diseases was very general throughout the kingdom, the only instance of increase being a fractional one in the Channel Islands, while in some instances the decrease was considerable, notably the Home district, 44·1, North Britain, 36·7, and Woolwich, 86·0. The most frequent causes of admission were, of

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course, bronchitic affections, over three fourths of the total number of admissions being on account of these diseases. The cases of pneumonia numbered 707, being 12 per cent. of the total; those of pleurisy 345, or 6 per cent., and pneumonic phthisis 89, or 1·5 per cent., of the whole number of cases. Of the deaths, 69 were due to pneumonia, 28 to pneumonic phthisis, 10 to bronchitis, 6 to pleurisy, 3 to pulmonary hæmorrhage, 1 to laryngitis, 1 to œdema glottidis, and one to empyema. Out of 79 men invalided 35 cases were pneumonic phthisis.

Diseases of the Digestive System.—These were the cause of 10,156 admissions into hospital and 37 deaths, equal to ratios of 100·5 and ·36 per 1,000 respectively. The ratio of admission scarcely differs from that in the preceding year, but the rate of mortality is lower by ·13. As registration of diseases of the digestive system was somewhat altered by the recent changes due to the new nomenclature of diseases comparison between the ratios for the year under report and the average ratios for the preceding five years cannot be made with exactitude, though it can be done with sufficient accuracy to show that a decrease has taken place in the ratio of prevalence, and also in that of mortality. In England alone the admission ratio was 104·3 per 1,000, in Scotland 88·6, and in Ireland 91·1; and in no case is there any marked variation from the corresponding ratio in the preceding year. With regard to the different districts, the greatest prevalence of these diseases occurred in that of Chatham, where the ratio amounted to 135·9 per 1,000, the next ratio was 114·7 in the Western, followed by 110·4 in the Eastern district. The lowest ratio of prevalence was 75·3 per 1,000, and occurred in the Belfast district. In the Channel Islands the rate was 76·8, and in the South-eastern district 80·0. Prevalence of digestive complaints increased in 9 districts and decreased in 6. The most marked increase was 24·3 in the Chatham district, and 23·2 in the Channel Islands; but in the remainder increase was not great in any case, and none of the instances of decrease were great. The principal causes of admission were affections of the mouth and throat; these numbered 6,577, equal to 64 per cent. of the total number of admissions for diseases of the digestive system. The other diseases causing numerous admissions were dyspepsia 1,382, diarrhœa 556, and hepatic diseases 600. Of the last named, there were 326 cases of jaundice and 9 cases of hepatic abscess. The deaths are returned as follows:—Peritonitis 7 cases, hepatitis, cirrhosis of liver, and intestinal obstruction each 5 cases, enteritis 3, acute yellow atrophy of the liver, abscess of liver, and diarrhœa, 2 cases each, and gastritis, gastric ulcer, ascites, ulceration of cœcum, noma, and perityphlitis, one case respectively.

Diseases of the Lymphatic and Glandular System.—The admissions under this head numbered 2,089, and there was one death. The admission ratio equalled 20·7 per 1,000, as compared with 21·1 in the preceding year. The ratio of admission to strength for England alone was 21·0, for Scotland 11·0, and for Ireland 21·0 per 1,000, the first named being slightly above, and the other two being somewhat below, the corresponding rates in the previous year. The greatest prevalence of these affections among the different districts continued to be in the Aldershot and Dublin districts, the ratios reaching 40·8 and 33·2 per 1,000, the lowest ratio was still found in the Channel Islands, 9·1; in the Cork district also the ratio was low. The fatal case was one of splenitis.

Diseases of the Urinary System were the cause of 207 admissions and 20 deaths, being in the ratios of 2·1 and ·19 per 1,000, which are lower than the corresponding ratios in the previous year by ·4 and ·02 respectively. Most of the cases and deaths occurred in England, the respective ratios being 2·2 and ·17, while in Scotland these were 1·7 and ·27, and in Ireland 1·6 and ·20 per 1,000. The causes of death were Bright's disease, 10 cases, nephritis, 7 cases, renal abscess, 2 cases, and pyelitis, 1 case.

Diseases of the Generative System show as many as 5,419 admissions, the ratio being 53·6 per 1,000, differing from the preceding year's rate only by an increase of 1·6. The ratios for the three great divisions of the kingdom were 56·2 for England, 52·0 for Scotland, and 46·2 for Ireland. These high ratios are chiefly dependent on the fact that simple venereal ulcers are included in the admissions under this order, and, as these cases numbered 3,388, without

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them affections of the generative system would only have a ratio of prevalence of 20·1 per 1,000. In some of the districts the admission ratios were high, in the Southern and Eastern districts, for instance, 91·2 and 85·5 per 1,000 respectively, and in the Chatham and South-eastern districts they were low, 24·2 and 27·5, these variations depend chiefly on the prevalence or otherwise of simple venereal sores. Three deaths are recorded under diseases of the generative system, and they were caused by extravasation of urine in two cases and gangrene of the penis in one case.

Diseases of the Organs of Locomotion.—Under this head 683 admissions are recorded, and 2 deaths. The admission ratio, 6·8 per 1,000, is higher than in the previous year by ·7, and is also somewhat above the average rate. In England the admission ratio was 6·4, in Scotland 6·3, and in Ireland 7·9 per 1,000. The rates in the different districts varied from 8·8 per 1,000 in that of the Curragh to 4·7 in the Northern district. The deaths are returned as degeneration of cartilage and lumbar abscess, one case respectively.

Diseases of the Connective Tissue.—The admissions numbered 2,276, and there were 2 deaths. The ratio of admission was 22·5 per 1,000, below that in the preceding year by 2·4, and also below the average ratio. The ratio in England, 22·3, is below the corresponding ratio in the previous year, also that in Scotland, 18·7, but that in Ireland, 23·5, shows an increase. The causes of death are shown as one case of inflammation of the connective tissue and one case of abscess.

Diseases of the Cutaneous System caused 8,225 admissions, equal to a ratio of 81·4 per 1,000, which is below the previous year's rate by 9·9, and a good deal below the average rate. The ratio in England amounted to 83·7, in Scotland to 85·8, and in Ireland to 73·9 per 1,000, all of which have declined from the corresponding ratios in the preceding year. In the districts the ratios varied from 121·8 per 1,000 in the Western to 51·0 in the Curragh. By far the most frequent causes of admission were itch, ulcers, and boils.

Poisons.—There were 14 admissions into hospital and 5 deaths during the year, as compared with 21 admissions and 4 deaths in the preceding year. The cases included two of accidental poisoning by chloroform, both of which were fatal, one occurred during the performance of an operation for fistula in ano, and the other, in a civil hospital, during the reduction of a dislocation of the shoulder joint. Two cases of oxalic acid poisoning occurred, which recovered under treatment; in one case the poison was taken with suicidal intent, and in the other this may also have been the case, though it was not determined, but it is stated that the man was under the influence of drink. Two men were admitted for accidental poisoning by antimony, but both recovered. There were also two admissions from eating poisonous fish, mussels and whelks respectively, and in the last-mentioned a fatal termination ensued. Four admissions occurred on account of alcohol taken in a poisonous quantity, one of which ended fatally, the other three did well. There was one admission, with fatal result, for opium poisoning; it was found that the man was in the habit of taking the drug, and on this occasion took an overdose, not, it was thought, with suicidal intent. The three remaining cases were one of accidental mercurial poisoning, one of poisoning by tobacco, and one of chronic lead poisoning, all of which did well.

Injuries.—General injuries were the cause of 29 admissions and 39 deaths; in the preceding year there were 18 admissions and 34 deaths. Among the deaths were 10 from multiple injury. A serious gas explosion took place at Cambridge Barracks, Portsmouth, by which 3 men were killed on the spot, and 18 sustained more or less severe injuries, and were admitted into hospital; of the latter 2 died and 3 were invalided, but the remainder recovered. 4 deaths resulted from multiple injury due to falls; and there was one from injuries, self-inflicted, on a railway; 24 cases of death by drowning occurred, 21 of which are returned as accidental, 11 happening while bathing; in 3 instances evidence as to mode of drowning was not forthcoming or was insufficient, and a verdict of found drowned was returned; 8 admissions are recorded from the effects of heat, being cases of sunstroke or heat apoplexy, and two deaths from the latter are returned. There was one death from exhaustion by cold and exposure, the case occurred at Dover, but there was no evidence to show how the man came to be on the spot where he was found; a death occurred from burns and suffocation at the burning of the theatre at Exeter; and a

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man at the Curragh died from plugging of the air passages with vomited food while in a state of intoxication. Local injuries numbered 9,885, and there were 29 deaths, being in the ratios of 97·8 and ·28 per 1,000. Injuries were, therefore, below the average in frequency, though somewhat in excess of the number in the preceding year. The injuries were, of course, of a very varied character, contusions, wounds, and sprains constituting by far the greater part. The deaths included 11 from gunshot wound, 9 of which were suicidal and 2 accidental, the latter occurring on the rifle ranges at Aberdeen and Lydd respectively; 9 deaths are recorded from fracture, 6 being cases of fracture of the skull, of which five were the result of falls, from horse-back in two cases, and the other was the result of a blow received in a quarrel among some civilians at Colchester; two cases are returned as fracture of the spine, one being that of a man who fell from a waggon on a field day, and the other that of a man who fell into a ditch; and there was one death from fracture of the cervical vertebræ with compression of the cord, resulting from the man having dived into very shallow water while bathing, paralysis was almost complete below the neck, but the man lived ten months after the accident. 2 deaths occurred from rupture of the heart, in one case the man fell from some ramparts into a ditch, and the other the man was thrown from a car, and in falling pulled a large box on himself. 2 deaths are returned from contusion of the abdomen, one with rupture of intestine, resulting from a blow of a man's knee while playing football, and the other, in which peritonitis ensued, resulting from a man being squeezed against the side of a railway truck by his horse. There was one fatal case of compression of the brain, resulting from a fall down stairs, one from wound received in a tramcar accident, and one from rupture of the bladder, resulting from a fall from a window. There was one death from cut throat, suicidal, and one death is returned from injury to the spine, full particulars of which are not available.

There were 262 admissions shown under the head of no appreciable disease, differing only by a decrease of 15 from the number recorded in the previous year. One death is returned as "cause unknown," the man fell dead, presumably from cardiac disease, but no autopsy was held, and interment took place under coroner's order.

The number of suicides among the troops serving in the United Kingdom was 11 as compared with 29 in the preceding year, and with an average of 24 per annum for the last five years. Nine of the suicides were by gunshot, one by cut throat, and the other by the man placing himself to be run over by a train. In 10 of the cases no motive or cause for the act was given or could be discovered, but the remaining case was attributed to drink. In nine instances a verdict of temporary insanity was recorded, in one a verdict of *felo-de-se* was given, and in the other the coroner's jury returned a verdict of suicide but that there was no evidence as to mental condition. The average age of the men who committed suicide was 29¾ years, and the average length of service 9¾ years. Of attempts at suicide it is recorded that one man cut his throat, but not severely, and that the act was probably due to intemperance; and one man attempted to poison himself with oxalic acid, but recovered under treatment; the motive for the act is not recorded.

Among the surgical operations performed during the year may be mentioned an amputation of the thigh at the upper third, necessitated by injuries received in a tramcar accident, the man died 12 hours after the operation; there was also an amputation of the thigh at the middle third on account of pyæmic abscess, and one at the lower third on account of gangrene, both of which had a satisfactory result. An amputation of the leg, on account of compound fracture, was successfully performed, but the man subsequently died; there were two other amputations of the leg, one on account of abscess and the other on account of necrosis, both of which were successful. There were also many cases of minor amputations—fingers and toes—all with satisfactory results. An excision of the knee-joint on account of disease was successfully performed, also excision of carious bone from the tibia; but an excision of part of a rib in a case of empyema had a fatal termination. Excision of the eyeball was necessary in three cases on account of injuries received, and was successfully performed; and two cases of iridectomy were undertaken, one of which was successful, and the other partially so. Paracentesis thoracis, on account of pleurisy, is recorded in four instances with satisfactory results; but

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one case subsequently died of lung disease; two operations by incision in cases of empyema were also successful. A case of excision of glands from the groin had a fatal termination, death resulting from pyæmia, and a case of colotomy, on account of intestinal obstruction, also ended fatally. Several tumours were successfully removed, including a fatty tumour from the left temporal region, a fibrous tumour from in front of the patella, also one from the neck, a cartilaginous tumour from the foot, and an epithelioma from the lip; also sebaceous cysts from the face and neck, a polypus from the nose, and one from the ear. Removal of renal calculi was performed with success; also cases of internal and external urethrotomy, aspiration of the bladder, aspiration of the knee-joint, tenotomy, various operations for fistula in ano, hæmorrhoids, hydrocele, varicocele, and several others of a minor nature. *United Kingdom.*

Invaliding.—The number of men discharged by invaliding during the year was 1,525, equal to a ratio of 14·80 per 1,000 of the strength, which is lower than the corresponding ratio in the preceding year by 2·84, and than the decennial average rate by 9·41 per 1,000.

The ratio of invaliding among troops quartered in England and Wales, 15·93 per 1,000, shows a decline of 3·37 as compared with the corresponding rate in the previous year; the rate of invaliding in Scotland, 15·40 per 1,000, has increased by 5·24 in this comparison, and the rate in Ireland, 12·60 per 1,000, has decreased by 2·97.

The most frequent causes of invaliding were diseases of the circulatory system, this was also the case in the preceding five years; the number of men invalided was 322, or 3·13 per 1,000, which scarcely differs from the rate in the previous year. Next in point of frequency comes invaliding from diseases of the nervous system, 228 men, or 2·21 per 1,000, which is lower than in the foregoing year; then tubercular diseases, 170 men, or 1·65 per 1,000, a very slight increase. All the remaining ratios of invaliding were fractional, and in most cases were below the corresponding ratios in the preceding year.

With regard to invaliding at different periods of service, the returns show that 1,006 men were invalided within the first five years of service. Calculating the ratio per 1,000 on a strength of 75,106 men (taken from a table in the General Annual Return of the Army for 1887), it is found to be 13·39, in the previous year the corresponding ratio was 14·99; in the next quinquennium, 5 to 10 years' service, 225 men were invalided out of a strength of 13,643, being in the ratio of 16·49 per 1,000, a decline of 3·53 from the preceding year; between 10 to 15 years' service the number of men invalided was 74 out of a strength of 5,786 serving, the ratio per 1,000, 12·79, showing a decrease of 1·52; in the next quinquennial period, 15 to 20 years, 158 men were invalided, strength being 5,833; the ratio, therefore, was 27·09; and over that service, in a strength of 2,647 men, 62, or 23·42 per 1,000, were invalided; in each of the last two ratios also a decrease is observed, of 2·98 and 4·45 respectively. The per-centage of men invalided in the first quinquennial period of service to the total number invalided was 66, in the second quinquennium 15, in the third 5, in the fourth 10, and over 20 years' service 4 per cent. These per-centages of invaliding differ but very slightly from the corresponding ones in the preceding year.

Taking the first year of service only, it is found that 327 men were invalided, the average strength of men being 26,292, the ratio, therefore, was 12·44 per 1,000, which differs from the corresponding rate in the previous year by a very small fraction. This does not include recruits under three months' service, who were discharged as unlikely to become efficient soldiers under the provisions of paragraph 227*d*, Section XIX., Queen's Regulations and Orders for the Army, 1885. These are shown in the section on the Recruiting of the Army. The per-centage of men invalided in their first year of service to the total number invalided was 21 as compared with 23 in the three preceding years. Taking certain frequent causes of invaliding and comparing their relative frequency of occurrence in the first year of service and in total service, it is found that cardiac affections gave an invaliding rate of 3·00 per 1,000 among men under one year's service, and a rate of 2·56 in total service; epilepsy caused an invaliding rate of 1·60 per 1,000 in the first year of service, but only one of ·86 in total service; mental affections also caused a comparatively high invaliding rate in the first year of service, 1·48 per 1,000, as compared with ·93 in total service; but tubercular disease of the lung was the

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cause of an invaliding rate of only ·80 per 1,000 in the first year of service, while in total service the rate was just double. Compared with corresponding rates in the previous year these ratios have increased in each comparison in three of the diseases named, but in the case of mental affection a decrease is observed both in the ratio of men invalided under one year's service and in that of men invalided in the whole period of service.

Examining into the amount of invaliding according to age, it is observed that 263 men under 20 years of age were invalided out of a strength of 27,701, taken from the return above mentioned, the ratio per 1,000 being 9·49, a fractional increase on the corresponding rate in the previous year; the next five years of age, 20 to 25 years, shows 669 men invalided out of a strength at that age of 45,911, the ratio was, therefore, 14·57 per 1,000, a decrease of 1·75 from the foregoing year; between 25 and 30 years 284 men were invalided, strength being 15,495, the ratio was accordingly 18·33 per 1,000, which shows a decline amounting to 6·25; from 30 to 35 years there was an average strength of 6,352 men, and among these 97 were invalided, equal to a ratio of 15·27 per 1,000, a decrease of 3·14; from 35 to 40 years, in a strength of 5,588, there were 149 men invalided, being at the rate of 26·66 per 1,000, which is also lower than in the previous year by 3·40; and, lastly, over 40 years of age 63 men were invalided, the strength over that age being 1,968, which gives a ratio of 32·01 per 1,000 as compared with 41·25 in the preceding year. It will be noticed that the ratio of invaliding increases steadily with age up to 30 years, when there is a slight fall, to increase more rapidly after. The proportion of invaliding at the different periods of age to the total amount of invaliding was as follows:—Under 20 years 17 per cent., from 20 to 25 years 44 per cent., between 25 and 30 years 19 per cent., between 30 and 35 years 6 per per cent., between 35 and 40 years of age 10 per cent., and over that age 4 per cent. These proportions assimilate very closely to those recorded in the preceding two years.

The admissions, deaths, and average number constantly sick in the various military districts are shown in the following table:—

Military Districts.	Average Annual Strength.	Admitted into Hospital.	Died.	Average Number constantly Sick.	Ratio per 1,000 of Mean Strength.			Average Sick Time to each Soldier.	Average Duration of each Case of Sickness.
					Admitted to Hospital.	Died.	Constantly Sick.		
1. Northern -	12,094	9,879	58	468·84	816·8	4·79	38·77	14·15	17·32
2. Eastern - -	5,591	4,712	28	252·32	842·8	5·01	45·13	16·47	19·54
3. Western -	6,731	5,893	36	334·40	875·5	5·35	49·68	18·18	20·71
4. Southern - -	9,312	8,426	59	472·08	904·9	6·33	50·70	18·50	20·45
5. Chatham - -	3,511	2,635	13	137·20	750·5	3·70	39·07	14·26	19·00
6. South-eastern -	8,147	5,265	46	342·73	646·2	5·65	42·07	15·35	23·76
7. Home - -	7,474	6,331	46	379·42	847·0	6·15	50·76	18·53	21·87
8. Woolwich -	5,133	3,802	32	287·12	740·7	6·23	55·93	20·42	27·56
9. Aldershot -	12,800	10,879	50	684·55	849·9	3·91	53·48	19·52	22·96
10. North British -	3,635	2,415	25	119·98	664·4	6·88	33·01	12·05	18·13
11. Channel Islands	1,536	1,067	8	53·51	694·7	5·20	34·84	12·72	18·30
12. Belfast - -	3,851	2,857	18	150·87	741·9	4·67	39·17	14·29	19·27
13. Dublin - -	8,657	7,150	53	443·35	825·9	6·12	51·21	18·69	22·63
14. Cork - -	8,665	5,795	44	286·58	668·7	5·08	33·07	12·07	18·05
15. Curragh - -	3,977	2,451	13	149·28	616·3	3·27	37·51	13·70	22·23
Total - -	101,114	79,557	529	4562·23	786·8	*5·13	45·12	16·47	20·93
Average of 10 years, 1877–86.	—	—	—	—	849·9	6·75	45·32	16·54	19·46

* Calculated on strength, including men detached (1,895).. . .

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The foregoing table shows that the highest ratio of admission to hospital in any district was 904·9 per 1,000 in the Southern district, the next being 875·5 in the Westrict district, followed by 849·9 in the Aldershot division. The lowest ratio of admission was 616·3 per 1,000 in the Curragh district, the next two above being 646·2 and 664·4 in the South-eastern and North British districts respectively. Compared with the return for the preceding year it is observed that a decrease has occurred in the admission ratios of all the districts except those of Chatham, Belfast, and the Channel Islands, in each of which there was an increase. *United Kingdom.*

The highest ratio of mortality occurred in the North British district, and reached 6·32 per 1,000, followed by 5·90 in the Southern district and by 5·84 in that of Woolwich; while the lowest death rates were 2·51 per 1,000 in the Curragh district, 3·42 in the Chatham district, and 3·68 in the Aldershot division. The mortality rate of every district, except the North British, was lower than the corresponding ratio in the preceding year, markedly so in the case of the Western and Woolwich districts, and in the Channel Islands.

With regard to the amount of inefficiency through sickness, the highest ratio of constantly sick was 55·93 per 1,000 in the Woolwich district, the next, 53·48, in the Aldershot division, and then 51·21 in the Dublin district, these three districts also gave the highest rates of inefficiency in the preceding year; the lowest ratio occurred in the North British district, 33·01 per 1,000, the next above being 33·07 in the Cork district and 34·84 in the Channel Islands. All the ratios of constantly sick in the several districts, with the exception of those of the Eastern and Belfast districts, were lower than the corresponding rates in the preceding year. The three districts in which the average sick time to each soldier was longest, and the three in which this was shortest, were the same as those in which the highest and lowest ratios of constant inefficiency on account of sickness respectively are recorded, the average sick time to each man at the Woolwich, Aldershot, and Dublin districts being 20·42 days, 19·52 days, and 18·69 days, and in the North British and Cork districts and in the Channel Islands being 12·05 days, 12·07 days, and 12·72 days respectively. The average sick time was also shorter than the corresponding period in the previous year in all the districts except the Eastern and Belfast districts. The average duration of each case of sickness was longest in the Woolwich district, 27·56 days, in the South-eastern district, 23·76 days, and in Aldershot, 22·96 days, and shortest in the Northern district, 17·32 days, in the Cork district, 18·05 days, and in North Britain, 18·13 days. In ten out of the fifteen districts the average duration of each case of sickness was longer than in the previous year, and in the remainder it was shorter.

The following table is given to show a comparison between the chief statistics of sickness and mortality among troops quartered in camps at Aldershot, Colchester, Shorncliffe, the Curragh, &c., and those quartered at 36 large towns, where the average strength was over 500 non-commissioned officers and men:—

1887.	Average Annual Strength.	Admissions.	Died.	Average Constantly Sick.	Ratio per 1,000 of Mean Strength.		
					Admissions.	Deaths.	Constantly Sick.
Camps - -	21,983	17,401	86	1097·93	791·5	3·91	49·94
Towns - -	54,509	45,794	306	2725·48	840·1	5·61	50·00

It is observed that though there is practically no difference between the ratios of constantly sick the ratios of admission and mortality among troops in the camps are lower than those living in large towns. In the report for the year 1880 similar information was given as regards the camps, and if the results for the year under report be compared with those just alluded to a considerable decline in admission ratio has occurred, as well as in that of mortality, but the ratio of constantly sick has slightly increased.

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The following table, compiled from the Returns of the Principal Medica Officers, shows the admissions, deaths, number of men invalided, and numbe r constantly sick, from each arm of the service, with the ratios per 1,000 of the strength, and the corresponding ratios for the previous ten years :—

Arms of the Service.	Average Strength.	Admitted into Hospital.	* Died.	Discharged as Invalids.	Average Number Constantly Sick.	Annual Ratio per 1,000 of Strength.				Average of 10 Year, 1877–86.			
						Admitted.	Died.	Invalided.	Constantly Sick.	Admitted.	Died.	Invalided.	†Constantly Sick.
Household Cavalry	1,246	716	5	16	35·52	574·6	4·01	12·84	28·51	655·3	3·87	24·31	35·39
Cavalry - -	10,478	8,458	45	164	493·50	807·2	4·29	15·65	47·10	984·5	5·42	29·45	50·98
Royal Artillery -	16,686	12,644	104	316	781·57	757·8	6·23	18·94	46·84	768·9	7·53	25·18	44·84
Royal Engineers -	3,768	2,243	23	39	126·93	595·3	6·10	10·35	33·69	599·3	7·68	18·19	32·78
Foot Guards -	5,261	4,913	34	92	335·31	933·8	6·46	17·49	63·73	997·1	6·78	24·53	55·95
Infantry - -	45,327	33,390	208	684	2209·75	847·0	4·59	15·09	48·75	894·7	6·22	25·53	50·45
Regimental Depôts	13,159	8,819	78	163	369·74	725·3	6·41	13·40	30·41	846·9	10·38	25·61	37·25
Garrison Staff and Departments.	6,189	3,374	32	51	209·91	545·2	5·17	8·24	33·92	606·2	7·95	15·19	38·28

* Including deaths of men detached. † For eight years only.

The highest ratio of admission in any arm of the service was 933·8 per 1,000 in the Foot Guards, this was also the case in the preceding year, and the same is observed in the average admission ratios for the previous ten years; the lowest rate was 545·2 in the Garrison Staff and Departments, in the previous year, and in decennial average, the lowest admission rate was furnished by the Royal Engineers, but in the year under report the rate of this arm was also low, 595·3 per 1,000. Mortality varied from 6·46 per 1,000 in the Foot Guards to 4·01 in the Household Cavalry; in the previous year the highest ratio was in the Garrison Staff and Departments, and taking the preceding decennium in the Regimental Depôts, the lowest ratio in both these comparisons was in the Household Cavalry. With regard to invaliding, the highest ratio, 19·00 per 1,000, is observed in the Royal Artillery, and the lowest, 8·24, in the Garrison Staff and Departments; in the previous year the highest invaliding rate was in the Foot Guards, and in the preceding ten years in the Cavalry; the lowest ratio was in the Garrison Staff and Departments in each of these cases. The highest ratio of constantly sick was 63·73 per 1,000 in the Foot Guards, and the lowest, 28·51, in the Household Cavalry; in the preceding year and in the previous decennial average the highest rate was also in the Foot Guards, but the lowest was in the Regimental Depôts in the former case and in the Royal Engineers in the latter. Compared with the results for the preceding year the admission and invaliding ratios have declined in all arms of the service, but as regards mortality there was an increase in the Royal Engineers and Foot Guards, and as regards constantly sick there was an increase in the Foot Guards; in all other arms there was a decrease in either case. Compared with decennial average rates the ratios of admission and invaliding of all arms of the service have declined in the year under report, and those of mortality also, except in the case of the Household Cavalry, which is slightly increased. With regard to the ratios of constant inefficiency through sickness when compared with corresponding average rates for the previous eight years, those of the Artillery, Engineers, and Foot Guards show an increase, but the remaining arms a decrease.

In order to show the influence of age on the mortality of the troops serving in the United Kingdom the following table has been prepared showing the

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strength, deaths, and ratios of mortality at different ages (arranged in quinquennial periods) in the several arms of the service :— *United Kingdom.*

Arms of the Service.		Under 20.	20 and under 25.	25 and under 30.	30 and under 35.	35 and under 40.	40 and upwards.
Household Cavalry	Strength	68	495	358	185	79	24
	Deaths	1	—	3	1	—	—
	Ratio per 1,000	14·70	—	8·38	5·40	—	—
Cavalry	Strength	2,098	5,332	2,137	657	511	113
	Deaths	4	21	9	6	3	2
	Ratio per 1,000	1·90	3·93	4·21	9·13	5·87	17·70
Royal Artillery	Strength	3,415	7,001	3,150	1,713	1,366	645
	Deaths	5	30	18	15	19	17
	Ratio per 1,000	1·46	4·28	5·71	8·75	13·91	26·35
Royal Engineers	Strength	725	1,968	896	433	341	124
	Deaths	1	10	2	4	4	2
	Ratio per 1,000	1·38	5·08	2·23	9·23	11·73	16·13
Foot Guards	Strength	749	3,184	1,216	273	190	68
	Deaths	1	20	6	1	5	1
	Ratio per 1,000	1·33	6·28	4·93	3·66	26·31	14·70
Infantry Regiments	Strength	15,376	21,701	5,129	1,628	1,795	545
	Deaths	50	83	30	15	23	7
	Ratio per 1,000	3·25	3·82	5·84	9·21	12·81	12·84
Regimental Depôts	Strength	4,418	3,686	1,583	954	969	449
	Deaths	8	9	8	11	21	21
	Ratio per 1,000	1·81	2·44	5·05	11·53	21·23	46·77
Garrison Staff and Departmental Corps	Strength	853	2,544	1,026	509	317	78
	Deaths	2	7	9	3	5	6
	Ratio per 1,000	2·34	2·75	8·77	5·89	15·77	76·92
Average of all Troops at Home	Strength	27,701	45,911	15,495	6,353	5,588	2,046
	Deaths	72	180	85	56	80	56
	Ratio per 1,000	2·60	3·92	5·48	8·81	14·31	27·37
Average of all Troops at Home, 1877–86	Strength	181,303	344,243	165,744	92,018	78,457	27,460
	Deaths	589	1,656	1,037	919	1,142	645
	Ratio per 1,000	3·24	4·81	6·25	9·98	14·55	23·48

Taking the average of all troops serving at home, it is observed that the ratios of mortality per 1,000 of strength increase steadily with each quinquennial period of age, as is also the case in the corresponding average ratios for the preceding ten years. The individual arms of the service also generally follow this rule, but an exception is noticed in the case of the Foot Guards,

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in which the death ratios of men between 25 and 30 years and 30 and 35 years are lower than in the preceding quinquennium, and also in the case of the Royal Engineers, in which the death rate of men between 25 and 30 years is lower than that of men between 20 and 25 years. Compared with similar information for the preceding year, the death ratios of all troops under 20 years of age, between 20 and 25 years, 25 and 30 years, and 30 and 35 years have decreased, but those of troops between 35 and 40 years, and over 40 years, show a slight increase.

The statistics of sickness and mortality for the different groups and orders of diseases among officers, women, and children during the year are shown in Abstract D., compiled from the annual returns of Principal Medical Officers of districts.

OFFICERS.—The average strength is returned as 3,870, and the number of attacks of illness was 1,195, and there were 17 deaths. The ratio of prevalence of sickness was, therefore, 308·7, and that of mortality 4·39 per 1,000. Compared with the corresponding ratios in the previous year the sick rate declined by 14·3, and the death rate by 1·92 per 1,000.

General Diseases.—Diseases dependent on Morbid Poisons.—In the 1st subgroup of these diseases, *eruptive fevers*, principally measles, caused 30 admissions, or 7·8 per 1,000, as compared with 10·4 in the previous year; there were three cases of scarlet fever. *Enteric fever* shows 11 attacks and one death, being in the ratios of 2·8 and ·26 per 1,000 as compared with 4·1 and ·27, the corresponding ratios in the preceding year, and with 1·4 and ·27 the similar ratios among non-commissioned officers and men. Of the cases, 4 occurred in Dublin, two in officers living in lodgings, one in the Royal Barracks, and one in Beggar's Bush Barracks. 3 cases occurred at Cork, two being in quarters in barracks, it is said near a sewer ventilator, but the third case was that of an officer living in lodgings. At Dover a case occurred at Fort Burgoyne, which proved fatal. At Weymouth there was an attack, which is believed to have been due to a sewer adjacent to the officers lodgings. The remaining cases occurred, one at the Curragh and one at Fort Purbrook, Gosport, but the cause of the disease is not stated in either instance. *Other continued fevers* caused 32 attacks of illness, or 8·3 per 1,000, which is just below the corresponding ratio in the preceding year. There were 7 attacks of dysentery scattered over various stations, one attack of diphtheria, and several of influenza and mumps.

Malarial Fevers were the cause of 61 attacks of illness, equal to a ratio of 15·8 per 1,000, which is twice as great as the corresponding ratio in the preceding year. Of the cases, 13 are returned as remittent fever, and the remaining 48 were ague.

There were 41 cases of *venereal disease* recorded, being at the rate of 10·6 per 1,000 as compared with 14·8 in the previous year. 34 of the cases were gonorrhœa; only 3 cases of primary syphilis, and 4 of secondary disease being recorded.

Under the head of *debility*, 24 cases are returned, equal to 6·2 per 1,000, a decline of ·6 from the foregoing year. 2 deaths are returned from debility.

In the remaining group of general diseases, 70 attacks of illness occurred, 67 of which were due to rheumatic affections. The ratio of prevalence, 17·3 per 1,000, is fractionally higher than in the previous year. There were three attacks of rheumatic fever, but no death. One case of tubercular disease of the lung is recorded, also one of diabetes which proved fatal.

Local Diseases.—Diseases of the Nervous System caused 28 attacks of illness and 2 deaths, being in the ratios of 7·2 and ·52 per 1,000, those in the preceding year having been 8·0 and ·27 respectively. Of the cases, 18 were neuralgia in some form, and among the remainder were two of meningitis, two of sclerosis of spinal cord, one of which was fatal, and one of apoplexy, fatal. *Diseases of the Circulatory System* show but little sickness, 10 cases only being recorded. Among these were 3 of valve disease of the heart, one of which was fatal, and 3 of palpitation. There was also one fatal case of fatty degeneration of the heart, and one of aneurysm. *Diseases of the Respiratory System* caused 161 attacks of illness and 5 deaths, being in the ratios of 41·6 and 1·29 per 1,000 as compared with 52·1 and 1·65 respectively in the preceding year. By far

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the greater part of the attacks were due to bronchial affections, and among the remainder there were 7 cases of pneumonia and 10 of pleurisy. The deaths are returned as pneumonia, 2, and bronchitis, asthma, and pleurisy, one respectively. *United Kingdom.*

Diseases of the Digestive System differed very little in frequency from the previous year, the ratio of prevalence, 66·4 per 1,000, showing a decrease of only ·3, and no deaths occurred. The great majority of the attacks were caused either by affections of the mouth and throat, dyspepsia, or diarrhœa. Hepatic affections caused 39 attacks of illness, one being a case of abscess of the liver. *Urinary diseases* were not frequent, the ratio of prevalence being 4·1 per 1,000, but there was one death from Bright's disease. The remaining orders of local diseases do not call for special mention, and do not differ greatly in prevalence from the same in the previous year, except affections of the cutaneous system, in which the ratio shows a marked decline.

Three cases are returned under the head of *poisons*, one chloroform poisoning and one belladonna poisoning, accidental, both did well, also a case of poisoned wound from dog bite.

Injuries were 254 in number, or 65·6 per 1,000, being slightly more frequent than in the preceding year. Four fifths of the cases were contusions, wounds, or sprains, and among the remaining cases were 21 of fracture, 15 of dislocation, and 8 of concussion of the brain. Two deaths are returned, one from compression of the brain and one from gunshot wound, suicidal, while in a state of temporary insanity.

WOMEN.—The annual returns give the average strength of women as 10,287; the number of cases of illness, exclusive of cases of ordinary parturition, was 3,672, and the number of deaths 57. The ratio of prevalence of sickness amongst women was, therefore, 357·0, and that of mortality 5·54, being lower than the corresponding ratios in the preceding year by 28·2 and 1·34 per 1,000.

General Diseases.—Diseases dependent on Morbid Poisons.—The admissions for *eruptive fevers* were 54 in number, equal to 5·3 per 1,000, an increase of 1·5 on the rate in the previous year. There were two cases of small-pox at Gosport, both of them recovered. The remaining cases included 35 of measles and 13 of scarlet fever. *Enteric fever* was the cause of 13 attacks and 3 deaths, as compared with 4 attacks and 2 deaths in the preceding year. Four of the cases occurred at Aldershot, and one proved fatal; three took place in Dublin (two from the Royal Barracks and one from Aldboro' House); there was one case at Devonport and one at Reading, both of which terminated fatally; and there were single cases, recoveries, at Shoeburyness, Galway, Mullingar, and Fermoy. *Other continued fevers* caused 28 attacks of illness, equal to 2·7 per 1,000, which is considerably below the ratio of the preceding year, a decline of 6·7. There were 18 cases of *dysentery* and 2 deaths; while in the previous year there were only 4 cases, and no death. The other diseases of this sub-group comprised two cases of diphtheria, two of whooping cough, six of influenza, and the remainder mumps.

The attacks of *malarial fever* were 35 in number; of these, 23 were returned as ague and 12 as remittent fever. The ratio of prevalence of these fevers differs only by a very slight increase from that in the preceding year, but in that year no cases of remittent fever occurred.

Under the head of *septic diseases* 31 attacks of illness are shown; of these, 23 were cases of erysipelas, and the remaining 8 puerperal septicæmia, 2 of which were fatal. *Venereal* diseases were represented by 10 cases of secondary syphilis, and the next group of diseases by a few parasitic affections, and a case of alcoholism.

Debility shows a high ratio of sickness, 60·0 per 1,000, but this is slightly below the corresponding ratio in the preceding year. Two deaths are returned as due to debility.

In the succeeding group of diseases *rheumatism* caused a rate of sickness equal to 21·9 per 1,000, which is slightly above the rate in the preceding year. Out of 225 cases of rheumatic affections 23 were rheumatic fever, from which 1 death took place. *Tubercular diseases* gave, as in the preceding year, 57 cases of illness, of which 51 were instances of lung affection. There were 14

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deaths, 11 being returned as tubercle of the lung. The ratios of prevalence and mortality were 5·5 and 1·36 per 1,000 as compared with 6·1 and 1·79 respectively in the preceding year. The remaining cases of sickness in this group of diseases were chiefly cases of anæmia, but four cases of malignant growth are returned, three of which proved fatal.

Local Diseases.—There were 212 attacks of illness recorded under *diseases of the nervous system*, and there were 4 deaths. The ratios per 1,000 were 20·6 and ·39, as compared with 18·9 and ·43 respectively in the preceding year. Neuralgic affections and hysteria caused 180 of the attacks of illness, and among the remainder were 9 of epilepsy, 3 of convulsions, and 5 of mental disease. The deaths were due to convulsions 2 cases, and encephalitis and white softening of the brain 1 case respectively.

Diseases of the Organs of Special Senses, with a ratio of 2·5 per 1,000, were less prevalent than in the previous year. The cases were chiefly conjunctivitis or simple aural affections.

Diseases of the Circulatory System.—Under this head 48 cases are returned, of which 16 were cases of palpitation, 12 of valvular disease of the heart, and 16 of affections of the veins, including 6 of phlegmasia dolens. 5 deaths occurred, 3 from valve disease of the heart, 1 from fatty degeneration of the heart, and 1 from phlebitis. The ratio of prevalence of circulatory affections, 4·7 per 1,000, shows a slight increase.

Diseases of the Respiratory System caused a ratio of sickness equal to 60·0 per 1,000, which is lower than in the previous year by 17·3. Out of 617 cases of sickness over five sixths were bronchial affections, and among the remainder there were 36 cases of pneumonia, 24 of pleurisy, and 17 of pneumonic phthisis. There were 8 deaths returned as follows: 3 from bronchitis, 3 from pneumonic phthisis, and 2 from pneumonia.

Diseases of the Digestive System.—Under this head 863 cases of illness and 7 deaths are recorded, being in the ratios of 83·9 and ·68 per 1,000 as compared with 82·7 and ·32 respectively in the previous year. The greater part of the sickness from these diseases was due to affections of the mouth and throat and to dyspepsia; there were also many cases of diarrhœa, colic, and constipation. Hepatic diseases caused 35 attacks of illness, of which 10 were cases of jaundice and 3 of abscess of the liver. There were 2 deaths from peritonitis, 2 from ascites, and 1 from hæmorrhage of the stomach, diarrhœa, and hepatic abscess respectively.

Diseases of the Lymphatic System caused a ratio of prevalence of 1·5 per 1,000, all being cases of inflammation of glands; and *urinary affections* gave a rate of 1·4, chiefly due to nephritis and Bright's disease, with one death from the latter.

Diseases of the Generative System.—The ratio of prevalence of sickness for diseases of this order was 43·5 per 1,000, being slightly lower than the corresponding rate in the preceding year. The mortality rate, ·39 per 1,000, has declined considerably. The total number of cases treated was 448, and among the various causes of illness were 99 cases of abortion, and 22 of premature labour. There were 4 deaths, 2 of which were recorded as parturition, and 1 from pelvic cellulitis and hæmorrhage respectively.

In the remaining orders of local diseases there was not much sickness, except from cutaneous diseases, but these were generally of a simple character. One death, however, is recorded under this head as due to lupus.

Injuries.—There were 66 injuries returned, equal to a ratio of 6·4 per 1,000, a fractional increase on the last year's rate. 58 of the injuries were cases of contusions, wound, sprain, or burns or scalds, mostly mild in character, and there were 6 cases of fracture and 1 of dislocation; also 1 of heat apoplexy.

CHILDREN.—The average strength of children during the year as gathered from the annual returns was 19,230. The number of attacks of illness was 9,010, and there were 502 deaths. The ratio of prevalence of sickness was therefore 468·5 per 1,000, which differs from the corresponding ratio in the previous year by an increase of only 2·0. The mortality rate was 26·10 per 1,000, which is lower than in the preceding year by 4·65.

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General Diseases.—Diseases dependent on Morbid Poisons.—The number of attacks of *eruptive fever* was 2,788, and there were 60 deaths, being in the ratios of 145·0 and 3·12 per 1,000 as compared with 95·3 and 3·80 respectively in the previous year. The large increase in the ratio of sickness is principally due, as will presently be shown, to the prevalence of measles. There were 5 attacks of small-pox, one of which occurred at Sheffield, and the other four at Gosport, all the cases recovered. The number of cases of measles alone was 2,193, and of deaths from this cause 47; the ratio of prevalence of measles, therefore, was 114·0 per 1,000, an increase of 37·2 on the corresponding ratio in the preceding year, but the ratio of mortality, 2·44, shows a decline of ·78. Scarlet fever caused 338 attacks, and there were 13 deaths, being in the ratios of 17·6 and ·68 per 1,000, which are above the corresponding ratios in the previous year by 6·7 and ·16 respectively. These two diseases were spread more or less throughout the kingdom, every district suffering to some extent from them, except that the Channel Islands escaped measles. There were 44 attacks of epidemic rose rash, principally in the Northern district. *United Kingdom.*

Enteric fever was the cause of 18 attacks of illness and 3 deaths, in the preceding year there were 12 cases and 1 death. Of the cases 5 occurred at Shoeburyness, one of which proved fatal, these were due to the defective condition of the drainage of the village; 3 cases occurred in Jersey in an old part of the town of St. Heliers, and 3 in Galway in lodgings in the town. There was a fatal case at Colchester and another at Gravesend, of the latter it is stated that it was due to opening a foul drain, and there were single cases, which recovered, at Portsmouth, Pembroke, Woolwich, Weymouth, and Dundalk, in none of these was the cause of the disease stated.

Other Continued fevers show a rate of prevalence of 6·3 per 1,000, lower by 4·8 than that in the previous year, which in its turn was lower by about the same amount than the rate of the year which preceded it. Among the cases, which were nearly all simple continued fever, was one of cerebro-spinal fever, this occurred at Aldershot. One death is recorded from simple continued fever. 28 attacks of dysentery and 1 death are returned, in the previous year there were 15 attacks and 2 deaths. *Other diseases* of this group causes 348 attacks and 21 deaths, of these whooping cough caused 233 attacks and 13 deaths. There were 89 cases of mumps, one of which proved fatal, 13 of influenza, and 13 of diphtheria, of which 7 died. Six of the cases of diphtheria, with three deaths, occurred at Manchester, where the disease was prevalent; three, with one death, at Aldershot; and one case at Sunderland, Taunton, Dorchester, and Portsmouth respectively, all fatal except the last named.

Malarial fevers show 19 attacks of sickness, 8 being cases of ague and 11 remittent fever. *Septic diseases* comprised 13 cases of erysipelas, of which two were fatal, one of pyæmia, and one of phagedæna, fatal. In the subgroup of *venereal disease* 20 cases, with two deaths from congenital or hereditary syphilis, are returned, and in the group of *parasitic diseases* 66 cases are shown, chiefly intestinal worms, and there was one death from thrush.

Under the head of developmental diseases 463 admissions and 62 deaths are recorded, being in the ratios of 24·1 and 3·22 per 1,000 as compared with 22·3 and 3·63 per 1,000 respectively. 447 of the cases and 52 of the deaths are returned as debility, the remainder being either cases of malformation or immaturity at birth, with one death from the former and 9 from the latter.

In the next group of diseases *rheumatism* shows 34 attacks of illness, or 1·8 per 1,000, of the cases 6 were rheumatic fever, one death is recorded. 52 cases are returned under the head of *tubercular diseases*, also 29 deaths. The ratio of prevalence is therefore 2·7, and that of mortality 1·51 per 1,000, which are lower than those in the previous year by ·8 and ·62 respectively. The ratios in that year also showed a decline in a similar comparison; 18 of the cases and 7 of the deaths were due to tubercle of the lung, the remainder to affection of other organs, &c.

Other diseases of this group caused 67 attacks of illness, due principally to scrofula and anæmia, there were 5 deaths, three being due to scrofula, one to anæmia, and one to malignant disease.

Local Diseases.—Diseases of the Nervous System.—Under this head 270 attacks of illness and 107 deaths are recorded, being in the ratios of 14·0 and

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5·57 per 1,000 as compared with 15·5 and 5·64 respectively. Convulsions caused 162 of the attacks of illness and 85 of the deaths, meningitis caused 18 attacks and 10 deaths, epilepsy 10 cases, &c. Among the remaining deaths were encephalitis 8 cases, and hydrocephalus 2 cases.

Diseases of Organs of Special Senses gave a ratio of prevalence of 8·9 per 1,000, rather less than in the preceding year. Ophthalmic affections, principally conjunctivitis, were at the rate of 7·1 per 1,000.

Diseases of the Circulatory System were represented by 4 cases of valve disease of the heart, 2 of which were fatal, and 1 of pericarditis.

Diseases of the Respiratory System caused no less than 2,248 attacks of illness and 129 deaths; but the ratios, 116·9 and 6·71 per 1,000, are lower than the corresponding ratios in the preceding year by 8·8 and 1·46 respectively. Most of the sickness was caused by bronchial affections, the ratio of prevalence of these being 107·4 per 1,000. Beyond these affections pneumonia and croup were the chief illnesses. The deaths were 93 from bronchitis, 22 from pneumonia, 10 from croup, 2 from laryngitis, and one from atelectasis and pneumonic phthisis respectively.

Diseases of the Digestive System were the cause of 1,246 attacks of illness and 59 deaths. The ratio of prevalence of these diseases was 64·8, and that of mortality 3·07 per 1,000, as compared with 72·6 and 3·86 respectively in the previous year. The principal causes of illness were affections of the mouth and throat, diarrhœa, dyspepsia, and teething. The causes of death were diarrhœa 38 cases, enteritis 5, teething 4, quinsy 3, sore throat 2, jaundice 2, peritonitis 2, &c.

To the remaining orders of local diseases but little sickness was due except diseases of the cutaneous system, which gave a ratio of sickness of 26·6 per 1,000; but this is lower than in the preceding year by 5·6. The diseases of this order causing sickness were very varied, but more than half the attacks were due to eczema. Ringworm also was a frequent ailment.

Under the head of poisons were 2 cases of poisoning by opium, accidental, both cases recovered.

Injuries were 306 in number, being at the rate of 15·9 per 1,000, about the same as in the previous year. The most frequent injuries were wounds 105, or 34 per cent. of the total number, contusions 77, or 25 per cent, and burns or scalds and fractures 20 and 13 per cent. respectively. There were 6 deaths returned as follows, drowning 3 cases, and asphyxia, burn, and rupture of trachea, one case respectively.

In Abstract XXXVIII. will be found a table showing the more important of the health statistics of the various corps which served in the United Kingdom during the year, and the stations at which they were quartered. It will be observed that of the three regiments of Household Cavalry the 2nd Life Guards, quartered in London throughout the year, gave the highest ratios of sickness and mortality though the lowest invaliding rate; the lowest admission rate was in the Royal Horse Guards, stationed for nine months of the year at Windsor. Among the regiments of cavalry the 19th Hussars, stationed at Norwich, had the highest ratio of admission, 1086 5 per 1000, but the death rate was *nil*. The 20th Hussars gave the next highest admission rate, 1037·9, and had also the highest death rate, 15·15, and constantly sick rate, 76·29; this corps was quartered in Woolwich, but only for a short period on return from foreign service. The lowest admission ratio of any regiment the whole year in the United Kingdom was 601·7 per 1,000 in the 14th Hussars, quartered at Shorncliffe, the next being 604·6 in the 5th Dragoon Guards, quartered at Dundalk. The 13th Hussars, five months at Colchester and seven months at Manchester, had a high mortality rate, 12·90 per 1,000, dependent on six deaths; but in three regiments there was no mortality. The invaliding ratios varied from 30·17 per 1,000 in the 21st Hussars and 24·39 in the 15th Hussars to 5·74 in the 16th Lancers and 3·79 in the 11th Hussars. The greatest amount of constant inefficiency through sickness, next to the instance above mentioned, was 62·83 per 1,000 in the 1st Royal Dragoons, stationed at Aldershot, and the least was 33·51 in the 5th Dragoon Guards. The health statistics for the Artillery are given by brigades and divisions, and it is observed that the highest admission rate was 1075·4 per 1,000 in the 4th Brigade Field Artillery, consisting of eight batteries, some quartered in Ireland and the rest in

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England; the Western Division of Garrison Artillery had the next highest rate, and the Coast Brigade the lowest; the latter, however, gave the highest mortality rate, 16·13, the lowest being 3·18 in the 3rd Brigade Field Artillery. Invaliding varied from 31·82 in B Brigade, Royal Horse Artillery, to 8·06 in the Coast Brigade, and the constantly sick rate from 65·21 in B Brigade, Horse Artillery, to 12·98 in the Coast Brigade. Of the Foot Guards the highest admission ratio was 1096·2 in the 2nd Battalion Scots Guards in London throughout the year, and the lowest 786·4 in the 1st Coldstream Guards, quartered for eight months at Windsor. Mortality was highest, 10·65, in the 1st Grenadier Guards, and lowest, 2·85, in the 2nd Coldstream Guards. In infantry regiments the greatest amount of sickness was in the 1st Battalion Manchester Regiment, quartered at Aldershot, the admission and constantly sick rates being 1790·6 and 99·14 per 1,000 while the least sickness was in the 1st Battalion Royal Lancaster Regiment, quartered at Buttevant, the corresponding ratios being 369·0 and 16·85. Mortality was highest in the 2nd Battalion Worcestershire Regiment, 13·25 per 1,000; this high rate was due to 11 deaths, 5 of which were the result of injuries received in a gas explosion at Portsmouth; in four regiments there was no mortality. There was most invaliding in the 1st Somerset Light Infantry, quartered at Colchester, the rate being 46·61 per 1,000, and least in the 1st Derbyshire Regiment at Kilkenny, the rate being only 1·31. *United Kingdom.*

Vaccination.

The following table shows the conditions as to vaccination of all recruits found fit for the service during the year, together with the proportion per 1,000 of each condition:—

1887.	Number of Recruits found fit for the Service.	Proportion per 1,000.
Had marks of vaccination - -	31,534	951
Had marks of small-pox - -	518	16
Had neither marks of vaccination nor marks of small-pox - -	1,104	33
Total - -	33,156	1,000

As compared with the results for the previous year an increase of 22 per 1,000 is observed among recruits bearing marks of vaccination, and a decrease of 9 among those bearing marks of small-pox, and of 13 among those bearing neither marks of small-pox nor of vaccination.

The following tables, compiled from the annual returns of Principal Medical Officers, show the number of vaccinations performed during the year, with the proportions per 1,000 of successful or modified results or of failures, whether vaccinated with fresh or preserved lymph.

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Results.	Vaccinated during the year.						Proportion per 1,000.					
	Arm to Arm.		From Preserved Lymph.		Total.		Arm to Arm.		From Preserved Lymph.		Total.	
	Primary Vaccination.	Re-Vaccination.	Primary Vaccination.	Re-Vaccination.	Primary Vaccination.	Re-Vaccination.	Primary Vaccination.	Re-Vaccination.	Primary Vaccination.	Re-Vaccination.	Primary Vaccination.	Re-Vaccination.
TABLE I.—*Recruits.*												
Perfect vaccine pustules	60	4,948	122	9,283	182	14,231	750·0	539·9	539·8	439·6	594·8	469·9
Modified vaccine pustules	17	2,318	47	5,439	64	7,757	212·5	253·0	208·0	257·5	209·1	256·2
Failures	3	1,898	57	6,396	60	8,294	37·5	207·1	252·2	302·9	196·1	273·9
Total	80	9,164	226	21,118	306	30,282	1,000·0	1,000·0	1,000·0	1,000·0	1,000·0	1,000·0
TABLE II.—*Soldiers other than Recruits.*												
Perfect vaccine pustules	22	741	22	1,089	44	1,830	293·3	518·9	314·3	363·6	303·4	413·8
Modified vaccine pustules	15	365	20	801	35	1,166	200·0	255·6	285·7	267·5	241·4	263·6
Failures	38	322	28	1,105	66	1,427	506·7	225·5	400·0	368·9	455·2	322·6
Total	75	1,428	70	2,995	145	4,423	1,000·0	1,000·0	1,000·0	1,000·0	1,000·0	1,000·0
TABLE III.—*Soldiers and Recruits.*												
Perfect vaccine pustules	82	5,689	144	10,372	226	16,061	529·0	537·1	486·5	430·1	501·1	462·8
Modified vaccine pustules	32	2,683	67	6,240	99	8,923	206·5	253·3	226·3	258·8	219·5	257·1
Failures	41	2,220	85	7,501	126	9,721	264·5	209·6	287·2	311·1	279·4	280·1
Total	155	10,592	296	24,113	451	34,705	1,000·0	1,000·0	1,000·0	1,000·0	1,000·0	1,000·0

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The first table shows the vaccination of recruits only, the second that of soldiers other than recruits, and the third the total amount of vaccination among soldiers comprising both the foregoing tables.

The total number of vaccinations performed during the year was 35,156, being lower than that in the previous year by 6,982. The number of recruits vaccinated was 30,588, and the number of soldiers, other than recruits, 4,568 the former being lower by 8,805 and the latter higher by 2,422 than the corresponding numbers in the preceding year.

The number of recruits found fit for service was 33,156; it would appear, therefore, that the vaccination of 2,568 recruits is not accounted for. This, however, is to be explained by the fact that some recruits who joined from the Militia were satisfactorily vaccinated while in that force, and did not require re-vaccination on joining the regular army; there were also some recruits who enlisted late in the year whose vaccination will appear in the returns of the following year; and there were certain instances of desertion before vaccination could be carried out.

With regard to the vaccination of recruits, it is observed, in Table I., that if the results be compared with those recorded in the previous year an increase, 23·4 per 1,000, in the proportion of perfect vaccine pustules has taken place in arm to arm primary vaccination, and one of 95·3 in the proportion of modified results, while there is a decrease of 118·7 in the proportion of failures. In arm to arm re-vaccination there is a decrease of 56·1 in the proportion of modified pustules, but an increase of 40·5 in perfect results, and of 15·6 in failures.

In primary vaccination with preserved lymph a decrease of 40·0 per 1,000 has taken place in the proportion of perfect vaccine pustules, and one of 15·5 in the proportion of failures, but these are counterbalanced by an increase of 55·5 in modified results. In re-vaccination with preserved lymph there is an increase of 10·7 in the proportion of failures, and a decrease of 10·5 in that of perfect results, while the proportion of modified results differs only fractionally.

The total results of vaccination among recruits show that in primary vaccination an increase 63·1 per 1,000 has occurred in the proportion of modified pustules, and a decrease of 12·1 and 51·0 in perfect results and failures respectively. With regard to re-vaccination, there is an increase of 5·1 in the proportion of perfect pustules, and an increase of 11·7 in failures, but there is a decrease of 16·8 in modified results.

With regard to the vaccination of soldiers, other than recruits, shown in Table II., it is observed, comparing the results with those recorded in the previous year, that in primary vaccination, whether arm to arm or by preserved lymph, there is a decline of 305·3 per 1,000 in the proportion of perfect pustules, but an increase of 197·9 in modified results, and one of 107·4 in failures. It must be remembered, however, with reference to these high figures that in the preceding year there were very few instances of primary vaccination, and the proportions as compared with those of the year under report vary considerably in consequence. The proportion of modified results in re-vaccination declined by 42·1 per 1,000, being counterbalanced by an increase of 40·0 and 2·1 in the proportion of failures and perfect results respectively.

In Table III. are the total results of vaccination among all classes of soldiers. In primary vaccination, as compared with the returns for the preceding year, a decrease of 105·9 per 1,000 occurred in the proportion of perfect pustules, but there was an increase of 76·9 in modified results and one of 29·0 in failures. In re-vaccination there was only a fractional difference in the proportion of perfect results, but there was a decline of 17·6 in the proportion of modified pustules and an increase of 16·8 in that of failures.

Among the total number of vaccinations performed amongst soldiers there were 16,287 perfect results, being in the proportion of 463·3 per 1,000, 9,022 modified results, or 256·6 per 1,000, and 9,847 failures, or 280·1 per 1,000. Compared with the corresponding results in the preceding year there is a decrease of 1·2 in the proportion of perfect pustules, and one of 15·8 in that of modified results, but there is an increase of 17·0 in that of failures.

Women.—There were only 23 instances of primary vaccination among women, but there were 408 of re-vaccination. Of the former, 17 cases had perfect results, 3 modified, and 3 failures. Of the latter, there were 246 perfect results, being in the proportion of 602·9 per 1,000, 71 modified results,

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or 174·0 per 1,000, and 91 failures, or 223·1 per 1,000. Compared with corresponding results in the previous year an increase of 112·5 has occurred in the proportion of perfect vaccine pustules, and one of 50·0 in that of failures, while there is a decrease of 162·5 in the proportion of modified results.

Children.—There were 1,529 cases of arm to arm primary vaccination, of which 1,451 gave perfect results and 78 failed, being in the proportions of 949·0 and 51·0 per 1,000. There is an increase of 10·3 per 1,000 in the proportion of successful results as compared with that in the previous year. The arm to arm re-vaccinations amounted to 126, of which all but 9 were successful, the proportion being 928·6 per 1,000, very slightly below the last year's rate.

Primary vaccination with preserved lymph was performed in 1,732 instances, with success in 1,350 cases. The proportion of successes per 1,000 operations was 779·4, which, however, is lower by 78·8 than in the previous year, while the proportion of failures is increased by the same amount. Re-vaccination with preserved lymph numbered 155, out of which there were 53 failures, the proportion of successes, 658·1 per 1,000, has declined by 102·2.

Primary vaccination (including both varieties) gave 2,801 successful results out of 3,261 operations, the proportion per 1,000 cases being 858·9, a decline of 40·0 from the previous year. The total re-vaccinations, 281, gave 219 successes, or 779·4 per 1,000, which is also somewhat lower than in the foregoing year.

The total number of vaccinations among children amounted to 3,542, and the successful results among them to 3,020, the proportion per 1,000 being 852·6 as compared with 893·9 in 1886.

Small-pox.—During the year there were in the United Kingdom 7 men attacked with small-pox, one of whom died, and 2 women and 5 children were also attacked, all of whom recovered. In the Colonies 2 men were attacked, but there were no cases among women and children. In India there were 40 attacks and 2 deaths among men, all the cases but one occurring in the Bengal Presidency; 5 attacks and 1 death among women, and 12 attacks among children. In Egypt there were 26 cases and 4 deaths among men, and one woman was attacked. The total numbers are 75 cases and 7 deaths among men, 8 cases and 1 death among women, and 17 cases, all of which recovered, amongst children. The ratios of attacks to strength are for men ·38 per 1,000, for women ·54, and for children ·61 per 1,000; and the ratios of mortality are for men, ·04 per 1,000, for women ·07, and for children *nil*. In the preceding year the ratios of prevalence among men, women, and children were ·44, ·42, and 1·10, and the ratios of mortality ·02, *nil*, and ·11 per 1,000 respectively.

On the Recruiting of the Army.

The number of recruits inspected during the year, according to the Annual Returns of Principal Medical Officers, was 60,976; of these 33,156 were approved for service, and 27,820 were rejected as unfit, being in the ratios of 543·76 and 456·24 per 1,000 respectively.

51,884 of the recruits were inspected by army medical officers only, and 28,138 were passed fit for service, being in the ratio of 542·33 per 1,000, while 23,746, or 457·67 per 1,000, were rejected as unfit.

The remainder of the recruits inspected, 9,092, were primarily examined by civil medical practitioners, who rejected 1,906, equal to 209·63 per 1,000. The number passed by them, 7,186, were referred to army medical officers for secondary inspection, with the result that 1,919 more men, or 211·06 per 1,000, were rejected, leaving 5,267 men, or 579·31 per 1,000, as approved.

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The total number of men, therefore, who were rejected on inspection was 27,571, or 452·16 per 1,000, leaving 33,405 men, or 547·84 per 1,000, passed for the service. In the preceding year the rate of rejection on inspection was 433·12, and the rate of approval on inspection 566·88 per 1,000. *United Kingdom.*

Under existing regulations all recruits passed for the service go through a period of probationary training before final acceptance, and it is provided by paragraph 227 (*d*), Section XIX., Queen's Regulations and Orders for the Army, 1885, that when an attested recruit under three months' service is considered unlikely to become an efficient soldier he is to be discharged as such (and not as an invalid unless for a disability manifestly contracted in the service).

Of the recruits inspected during 1887 there were 249 found, within three months of their enlistment, unlikely to become efficient soldiers, and were discharged under the provisions of the paragraph quoted above. These are added to the number of recruits rejected on inspection, making a total of 27,820, which increases the ratio of rejections to 456·24 per 1,000, and makes the ratio of finally approved recruits 543·76 per 1,000.

The following table shows the number of recruits inspected, the number rejected, and the ratios of rejections per 1,000 examined :—

TABLE I.

Examined by	Number of Recruits Inspected.	Number Rejected		Total Rejected on Inspection.	Unfit within three months of enlistment.	Total number found unfit.
		On Inspection.	On Secondary Inspection.			
Army Medical Officers -	51,884	23,746	—	27,571	249	27,820
Civil Medical Practitioners -	9,092	1,906	1,919			
Total - -	60,976	25,652	1,919	27,571	249	27,820

Examined by	Ratio of Rejections per 1,000.				
	On primary Inspection.	On Secondary Inspection.	Total Rejected on Inspection.	Rejected as unfit within three months.	Total number found unfit.
Army Medical Officers - -	457·67	—	452·16	4·08	456·24
Civil Medical Practitioners -	209·63	211·06			
Total - -	420·69	211·06	452·16	4·08	456·24

Compared with corresponding ratios in the preceding year an increase of 16·82 per 1,000 has taken place in the proportion of rejections of recruits inspected by army medical officers only, one of 2·06 in the proportion of rejections of recruits primarily inspected by civil medical practitioners, and one of 24·81 in that of recruits secondarily inspected by medical officers, but there is a decline of ·89 per 1,000 in the proportion of rejections of recruits within three months of enlistment.

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United Kingdom.

The native countries of recruits, the ratios of rejections, and the proportion per 1,000 furnished by each country are given in the following table:—

TABLE II.

Native Countries of Recruits.	Examined by Army Medical Officers.		Primarily Examined by Civil Medical Practitioners.		Rejected on Secondary Inspection.	Unfit within three months of enlistment.	Total.		Ratio Rejected per 1,000 Inspected.	Proportion per 1,000 Recruits furnished by each Country.
	Inspected.	Rejected.	Inspected.	Rejected.			Primarily Inspected.	Rejected at Primary and Secondary Inspections and as unfit within three months of enlistment.		
England and Wales	39,116	18,567	7,286	1,715	1,538	185	46,502	22,005	473·21	763
Scotland - -	5,244	2,168	622	28	151	33	5,866	2,380	405·73	96
Ireland - -	6,864	2,777	1,008	160	215	30	7,872	3,182	404·22	129
British Colonies and Foreign Countries -	660	234	75	2	15	1	735	252	342·86	12
Not stated -	—	—	1	1	—	—	1	1	—	—
Total -	51,884	23,746	9,092	1,906	1,919	249	60,976	27,820	456·24	1,000

Compared with the previous year's returns an increase has taken place in the ratio of rejections of recruits born in England and Wales, equal to 19·41 per 1,000; of recruits born in Ireland there is an increase in the ratio of rejections equal to 24·72, and of recruits born in British Colonies or foreign countries one of 12·35; but of recruits born in Scotland there is a decline of 4·29 in the ratio of rejections. The proportion per 1,000 recruits inspected who were natives of England was 763, an increase of 5 over the preceding year; the proportion born in Scotland, 96, is increased by 4, and the proportion born in British Colonies or foreign countries, 12, is increased by 1, but the proportion of recruits born in Ireland, 129, has declined by 10.

The next table gives, as far as possible, the number of recruits examined for each arm of the service, the number rejected, the ratios of rejections, and the proportion for each arm of the service per 1,000 inspected. It has been necessary to show a certain number under the head of general service as they are given thus in the returns, the particular arm not being stated:—

TABLE III.

Arms of the Service.	Examined by Army Medical Officers.		Primarily Examined by Civil Medical Practitioners.			Unfit within three months of enlistment.	Total.		Ratio of Rejections per 1,000 of Recruits Inspected for each Arm of the Service.	Proportion for each Arm of the Service per 1,000 inspected.
	Inspected.	Rejected.	Inspected.	Rejected at primary Inspection.	Rejected at secondary Inspection.		Inspected.	Rejected.		
Household Cavalry -	338	116	8	—	2	1	346	119	343·93	6
Cavalry of the Line -	3,263	1,495	648	162	113	19	3,911	1,789	457·43	64
Royal Artillery -	5,959	2,693	1,677	343	347	40	7,636	3,423	448·27	125
Royal Engineers -	1,310	535	169	30	27	6	1,479	598	402·97	24
Foot Guards - -	1,625	664	394	92	80	9	2,019	845	418·52	33
Infantry Regiments -	29,869	13,815	5,967	1,258	1,321	169	35,836	16,563	462·19	588
Departmental Corps	1,748	761	114	21	22	5	1,862	809	434·48	31
General Service -	7,772	3,667	115	—	7	—	7,887	3,674	465·83	129
Total - -	51,884	23,746	9,092	1,906	1,919	249	60,976	27,820	456·24	1,000

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Comparing these results with those in the previous year an increase of 38·72 per 1,000 is observed in the ratio of rejections of recruits for the Cavalry, one of 64·73 in that for the Artillery, one of 38·20 in that for the Engineers, one of 24·39 in that for the Foot Guards, one of 17·80 in that for the Infantry, and one of 8·17 in that for Departmental Corps; but a decrease of 113·65 took place in the ratio of rejections of recruits for the Household Cavalry, and one of 20·46 in that for general service. The proportion of recruits for each arm of the service per 1,000 inspected compared with the results in the preceding year calculated in a similar manner shows an increase of 1 in the Household Cavalry, of 16 in the Artillery, of 5 in the Engineers, of 10 in the Foot Guards, and of 8 in Departmental Corps, while there is a decrease of 15 in the Cavalry, of 24 in the Infantry, and of 1 in those inspected for general service. *United Kingdom.*

In the next table are given the occupations of recruits previous to enlistment, the ratio rejected per 1,000 in each group of occupations, and the proportion of each group in every 1,000 recruits inspected:—

TABLE IV.

Occupations of Recruits.	Number Inspected.	Number Rejected.	Ratio Rejected per 1,000 Inspected.	Proportion of each Group in 1,000 Recruits Inspected.
1. Labourers, Servants, Husbandmen, &c.	38,732	18,036	465·66	635
2. Manufacturing Artizans (as Clothworkers, Weavers, Lace Makers, &c.).	9,159	4,329	472·65	150
3. Mechanics employed in Occupations favourable to physical development (as Smiths, Carpenters, Masons, &c.).	7,055	3,025	428·77	116
4. Shopmen and Clerks - -	3,807	1,893	497·24	63
5. Professional Occupations, Students, &c.	849	329	387·51	14
6. Boys under 17 years of age -	1,363	205	150·51	22
Not stated - - - -	12	3	250·00	—
Total - - -	60,976	27,820	456·24	1,000

Compared with the return for the preceding year an increase is observed in the ratio of rejections in Class 1, labourers, &c., equal to 29·25 per 1,000, and in Class 4, shopmen and clerks, one equal to 64·50; in Class 2, manufacturing artizans, there is a decrease of 9·66; in Class 3, mechanics, &c., one of 9·65; in Class 5, professional occupations, one of 7·51; and in Class 6, boys under 17 years of age, a decrease of 33·14.

The proportions of the different classes of occupations among 1,000 recruits inspected, shown in the above table, differ but little from the corresponding ones in the preceding year. In Class 1, labourers, there was an increase of 1; in Class 4, shopmen and clerks, an increase of 6; and in Class 5, professional occupations, and in Class 6, boys under 17 years of age, an increase of 2 respectively; but in Class 2, artizans, there was a decline of 6; and in Class 3, mechanics, a decline of 5.

Table No. 5 shows the number of recruits rejected in 1887, with the causes of rejections arranged in classes, and the ratio per 1,000 in each class.

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TABLE V.

Causes of Rejections, in Classes.	Examined by Army Medical Officers.		Examined by Civil Medical Practitioners.				Total examined.			
	51,884		9,092				60,976			
	Number Rejected.	Ratio per 1,000 Rejected.	Number Rejected by Civil Medical Practitioners at Primary Inspection.	Ratio per 1,000 Rejected.	Number Rejected by Army Medical Officers at Secondary Inspection.	Ratio per 1,000 Rejected.	Total Number Rejected on Inspection.	Ratio per 1,000 Rejected on Inspection.	Unfit, within first three months of service.	Ratio per 1,000 Rejected.
1. Syphilis	379	7·31	82	9·02	32	3·52	493	8·08	1	·02
2. Scrofula	147	2·83	28	3·08	12	1·32	187	3·07	—	—
3. Phthisis	95	1·83	28	3·08	7	·77	130	2·13	9	·15
4. Impaired Constitution	250	4·82	22	2·42	35	3·85	307	5·03	3	·05
5. Other General Diseases	108	2·08	65	7·15	14	1·54	187	3·07	10	·16
6. Diseases of Nervous System.	22	·42	4	·44	6	·66	32	·53	27	·44
7. Weakness of Intellect	117	2·26	4	·44	22	2·42	143	2·34	39	·64
8. Defective Vision	2,029	39·11	180	19·79	150	16·50	2,359	38·69	5	·08
9. Diseases of Eyes and Eyelids.	69	1·33	21	2·31	10	1·10	100	1·64	5	·08
10. Diseases of Nose and Mouth.	33	·64	—	—	4	·44	37	·61	—	—
11. Disease of Ears	41	·79	—	—	2	·22	43	·71	2	·03
12. Deafness	83	1·60	2	·22	11	1·21	96	1·58	2	·03
13. Impediment of Speech	82	1·58	1	·11	4	·44	87	1·43	2	·03
14. Disease of Heart	1,002	19·31	178	19·58	83	9·13	1,263	20·72	27	·44
15. Disease of Arteries (Aneurysm).	8	·15	3	·33	1	·11	12	·20	—	—
16. Disease of Veins (Varix)	923	17·79	131	14·41	50	5·50	1,104	18·11	5	·08
17. Disease of Lungs (except Phthisis).	51	·98	36	3·96	1	·11	88	1·44	4	·07
18. Loss or Decay of many Teeth.	670	12·91	45	4·95	75	8·25	790	12·96	—	—
19. Hernia	368	7·09	101	11·11	22	2·42	491	8·05	6	·10
20. Laxity of Abdominal Rings	113	2·18	4	·44	11	1·21	128	2·10	—	—
21. Hæmorrhoids	100	1·93	18	1·98	14	1·54	132	2·16	—	—
22. Diseases of the Urinary Organs.	49	·94	22	2·42	4	·44	75	1·23	3	·05
23. Varicocele	689	13·28	207	22·76	42	4·62	938	15·39	5	·08
24. Other Diseases of the Genital Organs (not Syphilitic).	70	1·35	38	4·18	9	·99	117	1·92	1	·02
25. Defects of Upper Extremities, from Fracture, Contraction, Luxation, &c.	304	5·86	23	2·53	44	4·84	371	6·08	6	·10
26. Defects of Lower Extremities, from Fracture, Contraction, Luxation, &c.	711	13·70	75	8·25	83	9·13	869	14·25	4	·07
27. Flat Feet	554	10·68	41	4·51	69	7·59	664	10·89	13	·21
28. Diseases of Joints	144	2·78	10	1·10	16	1·76	170	2·79	3	·05
29. Other Affections of Bones and Muscles.	112	2·16	8	·88	8	·88	128	2·10	2	·03
30. Ulcers, Wounds, and Cicatrices.	107	2·06	16	1·76	15	1·65	138	2·26	2	·03
31. Other Affections of the Cutaneous System.	226	4·36	83	9·13	25	2·75	334	5·47	1	·02
32. Malformation of Ears	5	·10	—	—	—	—	5	·08	—	—
33. Malformation of Nose and Mouth.	9	·17	—	—	2	·22	11	·18	—	—
34. Malformation of Chest and Spine.	407	7·84	102	11·22	33	3·63	542	8·89	3	·05
35. Malformation of Urinary or Genital Organs.	25	·48	—	—	6	·66	31	·51	—	—
36. Marks of Punishment, or of letter D. or B.C.	—	—	—	—	—	—	—	—	—	—
37. Under Height	1,975	38·07	19	2·09	146	16·05	2,140	35·09	4	·07
38. Under Chest Measurement.	8,345	160·80	153	16·82	559	61·48	9,055	148·50	41	·67
39. Under Weight (Muscular Tenuity and Debility).	2,289	44·12	143	15·73	166	18·25	2,598	42·60	12	·20
40. Apparent Age not in accordance with General Order.	626	12·06	10	1·10	108	11·88	744	12·20	—	—
41. Not likely to become efficient.	368	7·09	—	—	12	1·32	380	6·23	2	·03
42. Over height		·83	—	—	6	·66	49	·80	—	—
Not stated	—	—	3	·33	—	—	3	·05	—	—
Total Rejected	23,746	457·67	1,906	209·63	1,919	211·06	27,571	452·16	249	4·08

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The above table shows that very nearly half the rejections were due to defective development, men being either under the height, weight, or chest measurement laid down by regulation. The highest ratio of rejection was for insufficient chest measurement, and was, including those discharged within three months' service, 149·17 per 1,000, as compared with 135·11 in the previous year; the ratio of rejections for being under the regulated weight was 42·80, being lower than that in the preceding year by 11·37, and the ratio of rejection for being under height was 35·16, an increase of 6·65. Defective vision was, as usual, a frequent cause of rejection, the ratio being equal to 38·77 per 1,000, which, however, is slightly lower than the corresponding rate in the previous year. Among other frequent causes of rejection may be mentioned cardiac affections, 21·16, varicose veins and varicocele, 18·19 and 15·47 respectively, defects of the lower extremities and flat feet, 14·32 and 11·10, and malformation of chest, 8·94 per 1,000. In the foregoing, and indeed in all the causes of rejection, there is but very little difference as compared with the corresponding ratios of rejections in the preceding year. *United Kingdom.*

A marked difference is observed in the ratio of rejections by medical officers and that by civil practitioners. This is especially noticed as regards rejection for deficient development, the ratio of rejection by medical officers for "under chest measurement" being 160·80 per 1,000, while that by civil practitioners was only 16·82; in defective vision this is also marked, the ratio of rejection by medical officers being 39·11, and by civil practitioners, 19·79 per 1,000.

Ages, Heights, Weights, and Chest Measurements of all Recruits finally approved for Service during the Year.

In the following table are shown the ages of all recruits finally approved for service, and the proportion of each age per 10,000:—

TABLE VI.

Ages.	Numbers finally approved for Service.	Proportion per 10,000.
Boys under 17 years - - - -	1,180	356
From 17 to 18 „ - - -	261	79
„ 18 to 19 „ - - - -	13,008	3,923
„ 19 to 20 „ - - - -	6,726	2,028
„ 20 to 21 „ - - - -	3,626	1,094
„ 21 to 22 „ - - - -	2,645	798
„ 22 to 23 „ - - - -	2,099	633
„ 23 to 24 „ - - - -	1,734	523
„ 24 to 25 „ - - - -	1,578	476
25 years and upwards - - -	299	90
Total - - -	33,156	10,000

It will be seen that the greatest proportion of recruits were between 18 and 19 years of age, 3,923 per 10,000, the next proportion, 2,028, a little more than half the previous one, was between 19 and 20 years of age, and this is

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United Kingdom.

followed by 1,094, also a little more than half the proportion before it, between 20 and 21 years of age. The results in this table as well as in those which follow are not quite comparable with similar tables given in previous years, as the latter included all recruits inspected, and the tables for the present year include only recruits finally approved for the service.

The next table shows the heights of recruits finally approved, and the proportion of each height per 10,000. It also gives the heights of recruits finally approved, arranged in series according to age, together with the proportion per 10,000 of each height at each age :—

TABLE VII.

Heights of Recruits finally approved for Service.	Boys under 17 Years.	Between 17 and 18.	Between 18 and 19.	Between 19 and 20.	Between 20 and 21.	Between 21 and 22.	Between 22 and 23.	Between 23 and 24.	Between 24 and 25.	25 Years and upwards.	Totals at each Height.
ft. in. ft. in.											
Under 5 3 -	1,012	7	19	5	2	1	3	—	—	4	1,053
5 3 to 5 4 -	77	53	769	199	66	47	26	22	13	7	1,278
5 4 to 5 5 -	41	58	3,977	1,556	693	432	355	230	183	25	7,550
5 5 to 5 6 -	21	58	3,422	1,615	847	572	416	341	289	48	7,629
5 6 to 5 7 -	14	37	1,975	1,225	694	496	371	311	305	55	5,419
5 7 to 5 8 -	4	23	1,339	900	519	399	348	309	293	65	4,199
5 8 to 5 9 -	5	13	862	641	393	278	257	219	220	33	2,911
5 9 to 5 10 -	4	7	406	339	250	215	188	147	156	36	1,748
5 10 to 5 11 -	2	2	125	132	116	97	71	89	72	14	720
5 11 to 6 0 -	—	1	80	73	69	63	45	32	26	9	398
6 0 and upwards	—	3	44	41	47	48	19	34	21	3	260
Totals at each age	1,180	261	13,008	6,726	3,636	2,645	2,099	1,734	1,578	299	33,156

Heights of Recruits finally approved for Service.	Proportions per 10,000 at each Age.										Total Proportion of each Height per 10,000.
	Boys under 17 Years.	Between 17 and 18.	Between 18 and 19.	Between 19 and 20.	Between 20 and 21.	Between 21 and 22.	Between 22 and 23.	Between 23 and 24.	Between 24 and 25.	25 Years and upwards.	
ft. in. ft. in.											
Under 5 3 -	8,576	268	15	7	6	4	14	—	—	134	318
5 3 to 5 4 -	653	1,993	591	296	182	178	124	127	82	234	385
5 4 to 5 5 -	347	2,222	3,057	2,314	1,911	1,633	1,691	1,326	1,160	836	2,277
5 5 to 5 6 -	178	2,222	2,631	2,401	2,336	2,163	1,982	1,967	1,831	1,605	2,301
5 6 to 5 7 -	119	1,418	1,518	1,821	1,721	1,864	1,768	1,794	1,933	1,840	1,632
5 7 to 5 8 -	34	881	1,029	1,338	1,451	1,508	1,658	1,782	1,857	2,174	1,267
5 8 to 5 9 -	42	498	655	953	1,084	1,051	1,224	1,263	1,394	1,104	878
5 9 to 5 10 -	34	268	312	504	689	813	896	848	989	1,204	527
5 10 to 5 11 -	17	77	96	196	320	367	338	513	456	468	217
5 11 to 6 0 -	—	38	62	109	190	238	214	184	165	301	120
6 0 and upwards	—	115	34	61	130	181	91	196	133	100	78
Total -	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000

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Omitting boys, the highest proportion of recruits of any height at any age per 10,000 finally approved was 3,057 between 18 and 19 years of age, and from 5 feet 4 inches to 5 feet 5 inches in height. *United Kingdom.*

The next table shows the weights of the recruits who were finally approved, and the proportion of each weight per 10,000. It also shows the weights of these recruits arranged in series according to age, together with the proportion per 10,000 of each weight at each age :—

TABLE VIII.

Weights of Recruits finally approved for Service.	Boys under 17 Years.	Between 17 and 18.	Between 18 and 19.	Between 19 and 20.	Between 20 and 21.	Between 21 and 22.	Between 22 and 23.	Between 23 and 24.	Between 24 and 25.	25 Years and upwards.	Totals at each Weight.
Under 100 lbs. -	994	6	1	1	—	—	1	—	—	—	1,003
100—110 lbs. -	126	37	55	13	10	6	2	—	—	1	250
110—120 „ -	45	77	3,566	1,091	349	209	141	74	52	8	5,612
120—130 „ -	10	37	5,484	2,403	1,125	692	460	345	266	45	10,917
130—140 „ -	5	33	2,709	1,268	1,126	821	648	554	470	99	8,463
140—150 „ -	—	12	910	890	647	547	499	402	420	66	4,393
150—160 „ -	—	3	200	256	265	240	238	227	233	42	1,694
160—170 „ -	—	1	73	60	83	96	100	93	96	24	632
Upwards of 170 lbs.	—	—	11	14	21	34	20	39	44	14	197
Totals at each age	1,180	261	13,008	6,726	3,626	2,645	2,099	1,734	1,578	299	33,156

Weights of Recruits finally approved for Service.	Proportions per 10,000 at each Age.										Total Proportion of each Weight per 10,000.
	Boys under 17 Years.	Between 17 and 18.	Between 18 and 19.	Between 19 and 20.	Between 20 and 21.	Between 21 and 22.	Between 22 and 23.	Between 23 and 24.	Between 24 and 25.	25 Years and upwards.	
Under 100 lbs. -	6,424	230	1	1	—	—	5	—	—	—	303
100—110 lbs. -	1,068	1,418	43	19	28	23	10	—	—	33	75
110—120 „ -	381	2,950	2,741	1,622	962	790	672	427	329	268	1,693
120—130 „ -	85	3,333	4,216	3,573	3,103	2,616	2,192	1,990	1,686	1,505	3,296
130—140 „ -	42	1,456	2,083	2,971	3,105	3,104	3,087	3,195	2,978	3,311	2,554
140—150 „ -	—	460	700	1,323	1,784	2,068	2,377	2,318	2,662	2,207	1,325
150—160 „ -	—	115	154	381	731	907	1,086	1,309	1,477	1,405	511
160—170 „ -	—	38	56	89	229	363	476	536	589	803	187
Upwards of 170 lbs.	—	—	8	21	58	129	95	225	279	468	59
Totals at each age	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000

Omitting boys, the highest proportion of recruits of any weight at any age per 10,000 approved was 4,216, between 18 and 19 years of age, and between 120 and 130 lbs. in weight.

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United Kingdom.

In the next table is shown the chest measurements of recruits finally approved, and the proportion of each measurement per 10,000. It also shows the chest measurements of these recruits arranged in series according to age, together with the proportion per 10,000 of each chest measurement at each age:—

TABLE IX.

Chest Measurement of Recruits finally approved for Service.	Boys under 17 Years.	Between 17 and 18.	Between 18 and 19.	Between 19 and 20.	Between 20 and 21.	Between 21 and 22.	Between 22 and 23.	Between 23 and 24.	Between 24 and 25.	25 Years and upwards.	Total at each Chest Measurement.
Under 31 inches -	1,053	9	1	1	—	—	2	—	—	—	1,066
31—32 inches -	95	36	92	29	15	13	5	3	—	—	288
32—33 „ -	23	88	1,110	276	119	94	56	26	15	7	1,814
33—34 „ -	7	93	5,971	2,426	1,002	636	410	282	224	32	11,083
34—35 „ -	2	24	4,236	2,538	1,378	952	730	613	465	100	11,038
Above 35 inches -	—	11	1,598	1,456	1,112	950	896	810	874	160	7,867
Totals at each age	1,180	261	13,008	6,726	3,626	2,645	2,099	1,734	1,578	299	33,156

Chest Measurement of Recruits finally approved for Service.	Proportions per 10,000 at each Age.										Total proportion of each Chest Measurement per 10,000.
	Boys under 17 Years.	Between 17 and 18.	Between 18 and 19.	Between 19 and 20.	Between 20 and 21.	Between 21 and 22.	Between 22 and 23.	Between 23 and 24.	Between 24 and 25.	25 Years and upwards.	
Under 31 inches -	8,924	345	1	1	—	—	9	—	—	—	321
31—32 inches -	805	1,379	71	43	41	49	24	18	—	—	87
32—33 „ -	195	3,372	853	410	328	355	267	150	95	234	547
33—34 „ -	59	3,563	4,590	3,607	2,764	2,405	1,953	1,626	1,419	1,070	3,343
34—35 „ -	17	920	3,257	3,774	3,800	3,599	3,478	3,535	2,947	3,345	3,329
Above 35 inches -	—	421	1,228	2,165	3,067	3,592	4,269	4,671	5,539	5,351	2,373
Total -	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000

Omitting boys, the highest proportion of recruits of any chest measurement at any age per 10,000 approved was 5,539 between 24 and 25 years of age and above 35 inches chest measurement, followed by 5,351 at the age of 25 years and upwards and over 35 inches chest measurement. Taking the ages at which the greater number of recruits are enlisted a high proportion, 4,590, is found between 18 and 19 years of age and 33 to 34 inches chest measurement.

From the foregoing tables it has been calculated that, excluding boys under 17 years of age, the average age of recruits finally approved during the year was 19·6 years, the average height, 5 feet 5·8 inches, the average weight, 126·2 lbs., and the average chest measurements, 33·8 inches.

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The next table shows the state of education of recruits finally approved, together with the proportion per 1,000 of those well educated, able to read and write, able to read only, or unable to read:— *United Kingdom.*

TABLE X.

—	Numbers finally approved.	Proportion per 1,000.
Well educated - - - -	2,775	88
Able to read and write - - -	26,354	795
Able to read only - - - -	1,451	44
Unable to read - - - -	2,576	78
Total - - - -	33,156	1,000

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United Kingdom.

HOME STATIONS.

Sanitary Conditions.

Northern District.

The Principal Medical Officer, Deputy Surgeon-General Johnston Ferguson, reports that the general health of the troops was maintained in a satisfactory state, and shows that the ratios of sickness and mortality to strength were lower than in the previous year.

The sanitary condition of the barracks and hospitals at the different stations was generally good. The accommodation for the troops was sufficient; the ventilation of barracks was generally satisfactory, and no alteration was necessary; the water supply is generally good in quality and sufficient in quantity, and the means of ablution in most cases satisfactory, though in one or two imperfect; in these, representation was made with a view to remedy the defect. The rations of the troops were good in quality, frozen meat was occasionally issued without any injurious effect. The means of cooking were satisfactory, and variety in mode of cooking and in diet was attended to.

In few cases were any serious sanitary defects brought to notice, but among them may be mentioned the following:—At Bury the bath-room boiler did not yield a sufficient quantity of hot water, but steps will be taken to remedy this. At Halifax and Chester the ablution accommodation is insufficient, but this condition has been brought to notice; at the last-named place it is said the hospital is unsuited to the requirements of the station, but the provision of a more commodious one was under consideration. At Sheffield the cooking range at the hospital was not large enough, it having originally been intended for only half the hospital, but steps were taken to include the requirement for extra accommodation in the list of services for the following year. At the Isle of Man the cooking range was found unfit for use, the matter was brought to notice, and prompt action recommended. At Warrington the drainage is reported as defective during the prevalence of heavy rains, as owing to the sandy nature of the soil the drains become blocked up with sand. When this occurs immediate action is taken to remedy the defect; but measures are being taken to ascertain if it is possible to permanently prevent this inconvenience. It is reported that at York the ventilation of the hospital wards is not satisfactory when the doors and windows are closed, but the Principal Medical Officer is of opinion that with a little arrangement the ventilators can be adjusted to remedy this defect.

None of the minor imperfections alluded to appear to have affected injuriously the health of the troops in the district. At stations where gymnasia exist the physique and activity of the troops using them have been improved.

Eastern District.

The Principal Medical Officer, Deputy-Surgeon General R. Hungerford, reports that the general health of the troops in the district was, on the whole, satisfactory, and that the barracks and hospitals were generally in a satisfactory condition. The means of ventilating, lighting, &c. were also, as a rule, good.

The chief defects and improvements at the different stations were as follows: At Colchester the surface drainage of the left wing of the cavalry barracks requires improvement. The accommodation in the station hospital was insufficient in the month of October and a marquee was used in addition. At

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Shoeburyness a new guard-room was erected near the Royal Engineer office, which gives more space for the men occupying the main guard. At Harwich external doors were fitted to the passages of the married soldiers' block, and the town water supply was laid on. *United Kingdom.*

At Landguard Fort a strong smell was complained of during certain winds and tides. Representations were made on this subject locally, with the result that it is proposed to carry the sewer from which the smell arises to below low-water mark. Moveable partitions have been put up between the casemated barrack rooms so as to prevent draught one from the other.

At Bury St. Edmunds the window space in barrack rooms was considerably reduced with a view to increase warmth, a similar course having proved satisfactory when adopted at Lincoln and at Bedford in the previous year.

The water supply to the militia barracks at Ipswich was improved, and water latrines substituted for the old cess-pits, which were of a very obnoxious nature. Windows were substituted for the skylights in the men's rooms, which is a great advantage; but other improvements are still needed, such as increased ventilation of the prisoners' room and of the tailors' shop, the roof of which is very low. The accommodation for married soldiers is insufficient, and some of the existing quarters much too small.

At Norwich a stove was fixed to heat the prisoners' room, there having previously been no means of warming.

Among the services proposed for the following year were, at Colchester, the construction of a female hospital, and the appropriation and proper fitting of a ward for lunatics.

The gymnasia at Colchester and Warley exercised, it is reported, a beneficial effect on the troops at those stations.

Western District.

The Principal Medical Officer, Deputy Surgeon-General R. W. Meadows, reports that there was a considerable decrease in sickness and mortality during the year, due to the absence of epidemics and increased care and attention to sanitary matters.

Sufficient accommodation is provided for the troops in barracks, except on rare and temporary occasions, and the sanitary condition of the buildings is reported as generally satisfactory.

At Pembroke Dock brick huts are gradually replacing those of wood, increasing the comfort of the men.

The hospital accommodation was sufficient, except at Devonport during the militia training season, when it was necessary to utilise tents, and at Pembroke Dock during the prevalence of venereal disease, but eight more beds were added to the hospital in consequence.

A small hospital for contagious diseases is recommended for the group of forts at the entrance to Milford Haven. It has frequently been necessary to vacate one of these forts, at inconvenience and expense, on account of the occurrence of epidemic disease.

Ventilation of barracks is said to be generally satisfactory, but to require constant watchful supervision. With regard to warming, it is stated that in the more northerly stations complaints are made that the rooms are cold in winter, particularly the new depôt barracks, which are built with many large windows. Newport barracks are cold on account of old-fashioned grates, which do not properly give out their heat, but the provision of new grates was under consideration.

Ablution accommodation was generally sufficient, except at Penally, but this was remedied. An apparatus for the supply of hot water to the fixed bath at Newport was required, and was about to be furnished. The water supply was generally good and abundant.

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United Kingdom.

The conservancy arrangements were generally satisfactory, and the latrines, &c. in good condition. The surface drains at Pembroke Dock, which required repair, were put in a better condition.

The rations for the troops were very good, and the cooking well done and varied.

Two important sanitary improvements are being adopted at all stations, disconnection of all pipes leading from inhabited buildings to main sewers, and removal of all drains, sewage pipes, &c. running under barrack blocks.

The submarine mining steamship, on board which a case of enteric fever occurred, has changed its moorings from the outlet of the Plymouth main sewer to a more desirable place.

The purchase of jerseys by the men, canteen funds bearing half the cost, is a great boon and an important factor in the reduction of sickness from affections of the respiratory organs.

Southern District.

The Acting Principal Medical Officer, Brigade-Surgeon W. C. Robinson, reports that the health of the troops in the district was good during the year. There were fewer admissions for enteric fever, which speaks well for the sanitary condition of the barracks.

Owing to the limited accommodation at the Portsmouth station hospital it was necessary to transfer a good many cases to the hospital at Gosport, and to treat several sick in tents and marquees. From time to time certain defects were found to exist in the drainage of some of the barracks, more especially at Anglesea barracks and the Gun Wharf; these, however, were represented as they were discovered, and the defective conditions remedied.

The sanitary condition of the new barracks, Gosport, was frequently reported, owing to the unsatisfactory condition of the adjacent moat, from which, especially during the summer months, offensive smells emanated; it is stated, however, that steps had not yet been taken to remedy the evil.

The accommodation in barracks for the troops was generally sufficient, and the ventilation of barracks satisfactory with one or two exceptions, one of which was at Winchester, as noted in the previous year. The warming of barracks was fairly satisfactory, but it was necessary to requisition for extra fuel during the winter months at several of the forts on the Gosport side, and the warming of the hospital at Hilsea was found to be unsatisfactory, but the condition was brought to the notice of the authorities.

The water supply is reported to have been good and abundant except at Parkhurst, where it was found to be unsatisfactory. Arrangements were made, therefore, by means of which water was obtained from the Newport town supply, since which there have been no complaints.

The rations were good and sufficiently varied, and there was no change in quantity or quality during the year. The means of cooking are reported to be effective and to work satisfactorily.

The ablution accommodation is generally satisfactory and sufficient, but at Parkhurst it was thought to be limited, and its extension was recommended.

The clothing of the men is reported to have been good and sufficient. The duties were of the usual character, and exercised no unfavourable influence on health, and the effects of gymnastic training were satisfactory.

Among the sanitary improvements carried out may be mentioned:—Provision of new ablution rooms at Cambridge barracks, Portsmouth. Reconstruction of drains at Anglesea barracks, and improved ventilation and drainage at Victoria barracks. Improvements in drainage at the Portsdown Hill forts, and at Forts Gomer, Grange, Rowner, and Brockhurst. Several minor alterations and improvements in sanitary condition at the different stations were effected during the year.

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Netley.

United Kingdom.

The Principal Medical Officer, Surgeon-General D. A. Campbell Fraser, reports that the sanitary arrangements of the Royal Victoria Hospital were carefully supervised during the year, and that all representations concerning the sanitary condition of the hospital and out-buildings received attention.

There was ample accommodation, and no overcrowding took place at any time during the year. With regard to water supply, it is stated that the reservoir was cleaned and repaired and new pipes of a larger bore, for conveying water to the hospital, were laid down. The boring of the artesian well in the south wing was extended to a total depth of 376 feet for an increased supply of water, which was obtained, and is reported to be of good quality for drinking purposes.

A new steam boiler was laid down in the north wing, to replace two smaller ones, for the better provision of condensed water to the kitchens, hot water for baths, and the working of the heating apparatus in the hospital. In the testing room in the medical division water was laid on and a sink provided, which is a great improvement.

The kitchens are reported to be in good order, and the cooking to have been good. The cooking classes of men of the Medical Staff Corps were satisfactorily and successfully carried out during the year. The rations were, on the whole, good, but the mutton was often too fat. Measures were taken to prevent meat with an undue proportion of fat being offered by the contractor.

The sanitary condition of the lunatic hospital was carefully attended to, and the hospital was kept in good order. The sanitary arrangements, drainage, ventilation, &c. connected with the female hospital are also in a satisfactory condition. Both these establishments have undergone the periodical painting during the year.

Chatham District.

The Principal Medical Officer, Deputy Surgeon-General G. M. Slaughter, reports that the general health of the troops in the district was good throughout the year, for although the amount of sickness was slightly above that of the previous year the mortality and invaliding was considerably lower.

The different barracks at Chatham, Brompton, and St. Mary's, which are old, and consequently inferior to more modern structures, are in a fairly good sanitary condition, and minor recommendations were attended to. No great alterations were considered necessary, but increased means of ventilation were provided in the tailor's shop and women's wash-house in Brompton barracks. A drain passing under the women's quarters was removed, and improvements were made in the watercloset and lavatory connected with the officers' mess.

At Chatham barracks the floors of the cook-houses were removed, but it is still desirable that the surface drainage, which is old, should be repaired, and that some means should be adopted to render the ablution rooms less damp and dark. At the Gun Wharf, where the main drain empties itself into the Medway, it is said that there is often an offensive smell at low tide, and a recommendation that it should be regularly flushed is now carried out. A large culvert, draining a part of the town, opens into the river at one end of the wharf, and, as it is above the water line, except at high tide, the shore becomes offensive; a recommendation has, therefore, been made that the culvert should be carried out sufficiently far into the stream so as to ensure the opening being always under the water; but this work, for which the estimate is high, had not yet been approved.

At Chattenden barracks the walls of the hospital are cracked in many directions, owing to the sinking of the foundation, but provision has been made to remedy this defect.

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At Upnor the huts erected for the accommodation of a few men in charge of stores had no provision for personal ablution, but this, having been represented, will be attended to.

At the Station Hospital, Chatham, the recommendation made that one of the wards should be fitted with a special heating apparatus for the accommodation and treatment of pulmonary cases was recently carried out. Hot water pipes have been placed in one of the wards on the ground floor, which can now be kept at a temperature of 65° or a little over, and is likely to be of the greatest service in the treatment of this class of diseases.

The rations for the troops throughout the district were good, with the occasional exception of complaints at Gravesend of the bread being under baked and the meat inferior; but these points were brought to notice. The means of cooking were satisfactory.

The clothing of the troops was in accordance with regulation, but it is remarked that it is advisable that the infantry should have the same underclothing as the mounted branches and engineers. An order was issued sanctioning the payment out of the canteen funds of half the cost of a jersey for each man.

South-eastern District.

The Principal Medical Officer, Deputy Surgeon-General S. A. Lithgow, M.D., C.B., D.S.O., reports that the general health of the troops was good during the year, and shows a gratifying improvement as compared with the previous year. Sanitation generally was well looked to, and recommendations bearing on the matter received ready attention as far as financial considerations permitted.

The medical officer at Brighton remarks that it is difficult to maintain warmth in the hospital in winter; that the hospital is old; surgical cases do not do well in it, and a new hospital is needed. The Principal Medical Officer agrees with him, that the hospital is not unobjectionable, but he is unable to discover that surgical cases do less well than at other places.

At Shorncliffe it is reported that the range waterclosets are defective, the cisterns being small and not filling up quickly enough after use, and this is no doubt an objection to closets on this principle, where calls on them are so frequent. The woodwork of the hospital is old, and in many places rotten, and the roof leaky from defective construction. The latter condition was brought to notice, and was to be remedied.

At Maidstone the Principal Medical Officer recommended that a certain married quarter, which was damp, low roofed, and had its floor on a level with the outside ground, should be entirely reconstructed, as so many cases of illness had occurred there. Authority was given for this to be done. At Fort Burgoyne the dampness of the guard and prisoners' rooms was brought to notice. It is observed that at certain stations, where earth closets are used, these do not answer the purpose intended well, for as a rule the earth is not of the character required, and is dry only in name. Attention being drawn to this point caused an improvement, at any rate, of a temporary character. Among the chief sanitary improvements effected during the year may be mentioned:—At Dover, South Front barracks, the whole system of drains was thoroughly examined, and any connexion between water pipe and drains cut off, and all defective traps replaced. New ventilating pipes added to drains, and some old ones raised. At the Citadel, drainage of each of four sunken areas, into which certain casemates open, taken up and relaid, stoneware sanitary pipes being substituted for brick drains. Main sewer from Western Heights thoroughly explored, and connecting shafts found and opened. At the Station Hospital a great part of the main drain was relaid, and at the prison the drainage was rectified by disconnection and ventilation. At Dover Castle ventilation of latrine drains and of waterclosets. At Shorncliffe new

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laundry and earth latrines for single and married soldiers' quarters in the Engineers' lines, in which lines married quarters have also been built, and in A lines two cook houses, and a brick hut for one sergeant and 48 men, were erected. At Chichester a new hut was erected for the hospital ward master. The patented process for precipitating and deodorising of sewage was completed and handed over to the Commissariat Department for maintenance. *United Kingdom.*

Home District.

The Principal Medical Officer, Deputy Surgeon General J. B. C. Reade, C.B., reports that the health of the troops in the district during the year was satisfactory, and the accommodation both in barracks and hospitals was, with few exceptions, good and sufficient.

At Regent's Park barracks the accommodation is hardly sufficient to meet all requirements. The ventilation of the men's barrack rooms is indifferent, and, owing to original faulty construction, incapable of satisfactory alteration. At Kensington barracks the guard-room is too small to accommodate properly the number of men required for guard duties, and increased ventilation is necessary. At Windsor also the guard-room is not sufficiently large. The hospitals generally are in a very satisfactory condition, but the accommodation in the three blocks of buildings at Rochester Row forming the station hospital is insufficient for the requirements of the Foot Guards, and sick are in consequence transferred to Woolwich for treatment.

The married quarters are generally satisfactory with the exception of some at Wellington Barracks, which are badly situated and constructed.

With very few exceptions the drainage of the barracks is satisfactory. At Reading it was reported unsatisfactory owing to the main drain being impeded by roots growing into it and obstructing it, but steps were taken to remedy this. At Hounslow the surface drainage is defective owing to the general flatness of the neighbourhood.

The water supply at the various stations in the district is derived principally from different companies waterworks, and is of good quality. At Hampton Court the water was considered unsatisfactory, but analysis was made, with the results that it was found of good quality and fit for use.

The rations of the troops were generally of good quality at all stations, and the means of cooking by Dean's, Warren's, or Flavell's ranges were satisfactory. The kitchens are kept clean and in good sanitary condition.

The clothing of the troops was satisfactory and in accordance with the regulations. In addition to that authorised, the issue of jerseys to the men at a greatly reduced rate was sanctioned, and the result is said to have been excellent as regards the men's health and comfort.

All sanitary requirements observed in the course of the year were at once brought to the notice of the authorities, who took whatever steps were necessary with reference to them.

In the various stations where gymnasia exist the course was found to be conducive to the health of the troops.

Woolwich District.

The sanitary report of the Principal Medical Officer, Deputy Surgeon-General J. Tulloch, M.D., shows that the sanitary conditions were on the whole satisfactory, and such as to maintain a high standard of health among the tooops. The barracks generally and the huts were kept clean and in a good sanitary condition, the ventilation, lighting, and warming, were sufficient, and there was no overcrowding. Increased accommodation for married families generally is said to be eminently desirable, a large number being at present in insanitary lodgings in the town. The guard-rooms and cells were in a satisfactory state, and there was sufficient accommodation. Lighting and warming of barracks, &c. were duly attended to, and in cold weather an increased amount of fuel was issued. With regard to drainage, it is stated that the

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sewer system was considerably improved during the year, as many old drains were taken up and new ones laid, but further improvements are still necessary. The general area around and between the barracks was kept clean, and surface conservancy generally attended to. Latrines, &c., were generally in a satisfactory condition, but one or two instances of faulty construction and want of ventilation were brought to notice.

The means of ablution generally, although not well distributed, are on the whole sufficient, but it is said would be greatly improved by a supply of hot water laid on to each bath-room, this would go far to prevent the neglect of personal ablution, which doubtless exists in the winter months.

The water supply for drinking purposes is reported to be good, though hard. There is a separate supply for flushing purposes pumped up from the river to a reservoir and thence distributed by pipes to the barracks for flushing the sewers. This, however, is apt to become foul in hot weather through stagnation in the reservoir, and to become unfit for its intended purpose, and is therefore open to objection.

The rations for the troops were reported to be satisfactory, tinned provisions were issued twice a month. All supplies offered to the troops at the canteens and coffee shops were good and cheap. The coffee shops were, it is reported, much frequented. Certain of the canteens in garrison are too small for the requirements, this was represented. The other canteens are suitable, and in a good sanitary state.

The accommodation in the Herbert Hospital was sufficient for all purposes, and the ventilation and warming satisfactory. Some quarters hitherto occupied by two medical officers were fitted up for the nursing sisters. This removes them from the neighbourhood of the barrack rooms, the proximity to which was a source of complaint. The advisability of the provision of a hospital for infectious diseases is again alluded to.

The water supply for the hospital is very good, and is abundant. The defective distribution of hot water to the administrative block of the hospital was remedied by taking the supply for the boilers from a higher elevation.

The rations for the hospital were good, and the cooking of the patients' diets very satisfactory.

Aldershot Division.

The Principal Medical Officer, Surgeon-General W. M. Webb, reports that the health of the troops in the division was satisfactory during the year.

He remarks that under strong recommendations the authorities recognised the necessity of providing the troops with a warm cardigan jacket for winter wear; this arrangement is carried out on payment by the soldier himself, aided by a contribution from the canteen funds. The introduction of this system has been productive of a marked decrease in the admissions into hospital for respiratory diseases. The Principal Medical Officer is of opinion that a free issue of the garment would considerably increase the number of effective soldiers, as under the present system many men do not provide themselves with the jacket in consequence of having to defray part of the expense themselves.

It became necessary during the year, owing to the increased sick list concurrent with the recent addition to the strength of the division, to add 40 beds to the 3rd Station Hospital; it was also necessary during the drill season to supplement the accommodation by the erection of marquees. It is still necessary to transfer sick from the Cambridge and 2nd Station Hospital to the 3rd Station Hospital to prevent overcrowding. Defects likely to effect a prejudicial influence on the health of the troops in wooden huts still exist to a slight degree, such as insufficient ventilation from various causes, overcrowding in some few huts and workshops, though improvements in these respects were made on medical recommendation. Further facilities were afforded for cleanliness by an increase of taps in the ablution rooms, South Camp. Strong recommendations have been made that hot water should be laid on to the baths in camps and in barracks.

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It was necessary, owing to the age of the wooden huts and the occurrence of cases of sickness in some of them, traceable in some instances to insanitary conditions, to remove the flooring and ground underneath, so that the subventilation might be adjusted, and a similar course was to be adopted with every hut which gave rise to any suspicion.

Some improvement was effected in the North Camp through the renewal of the drainage in A and B Lines, and in the Royal Artillery Permanent barracks by the relaying of the surface channels.

The reconstruction of the North Camp was continued during the year, a number of new brick huts for men and quarters for officers having been erected.

The soldiers' diets, and the arrangements for cooking the same, were satisfactory. There was no change in the composition of the rations during the year.

The clothing of the troops otherwise than has been already referred to was sufficient and suitable.

Training, as carried out at the gymnasia, is productive of excellent results. A new system of musical drill was being practised by some regiments, which is considered likely to prove a great success in the physical training of the soldier.

North British District.

The Acting Principal Medical Officer, Surgeon-Major W. F. Bennett, reports that the health of the troops in the North British district was good during the year, and that the sanitary condition of the different barracks and hospitals was satisfactory; and further, that it was not possible to trace the cause of any disease to an insanitary defect.

Among the sanitary improvements that he mentions as having taken place during the year are the following:—Improvement in the levelling of the pavements of the verandahs at Piershill, the addition of two windows and four ventilators to the prisoners' lock-up room at Ayr, and improvements in the urinal accommodation in the hospital grounds at Berwick-upon-Tweed.

The principal sanitary requirements in the district are said to be the following:—At Piershill the ground in front of the officers' mess requires levelling, so as to prevent accumulation of refuse. Certain faulty pipes used for slushing purposes require to be removed. At Berwick-upon-Tweed the ablution accommodation is indifferent, and there is no bath-room; these points require attention.

At Maryhill, Glasgow, latrine accommodation is said to be required for the infectious ward, and a bath-room is also thought to be necessary.

At Fort George it is reported that the water supply is defective, but that a well was being sunk to remedy this. The lighting of the barracks was also reported to be insufficient during the winter months.

There is a properly equipped gymnasium at Maryhill barracks, Glasgow, and apparatus at Piershill and Stirling. It is stated that the regular course in the former establishment and the use of the apparatus at the last-named stations appear to have had a beneficial effect on the health and physique of those exercised.

Channel Islands.

The Senior Medical Officer, Brigade Surgeon R. W. Berkeley, reports that the health of the troops was good during the year.

The sanitary condition of the different barracks and hospitals were, generally speaking, satisfactory.

The accommodation in barracks was sufficient and generally satisfactory, though at Fort Regent it appears to be less so than at other places. Ventila-

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tion is properly attended to, and the arrangements for ablution, warming, and lighting satisfactory, as a rule.

The principal defects which were noticed, and which necessitated recommendation, were as follows:—At Fort Regent the latrine accommodation is deficient, extension was recommended and provided for. It was desirable that hot water should be laid on to the bath-room at the hospital at St. Peter's, and a recommendation to this effect was estimated for. At Alderney the drainage of the hospital is reported to be imperfect, and attempts have been made to remedy the evil, but more extended effort is still necessary. The dry earth system of conservancy is recommended for Fort Albert. At St. Peter's the main drain became offensive at its outlet, about a hundred yards from the barracks, during the hot weather, its extension was, therefore, recommended; but as its present exit is at the extreme limit of Government property there is some difficulty in this. However, as there is a considerable and rapid fall from this point a sufficiently good sanitary condition may be arrived at by keeping the vicinity of the outlet free from all rank vegetation; and attention has been specially directed to this point.

Among improvements which were carried out may be mentioned, at Fort Regent the hospital drain diverted into the town sewer, and new racquet court erected, and at Elizabeth Castle a urinal constructed near the sergeants' mess.

Belfast District.

The Principal Medical Officer, Deputy Surgeon-General E. M. Sinclair, M.D., states in his annual report that the health of the troops in the district was good throughout the year, although the sick rate was somewhat higher than in the preceding year.

There was again overcrowding in all stations more or less, to the extent that the barracks were occupied on the basis of the old construction. This was unavoidable with the number of troops in the district, but it does not appear to have exercised any deleterious influence on the health of the men. The ventilation of the barracks was as good as circumstances permitted, and the sanitary conditions generally were fairly satisfactory.

Owing to there being a less amount of rain than usual during the year the water supply was defective in some stations, particularly at Belfast and at Belturbet; in the former place the town supply was only available four hours a day, and at the latter it was necessary to bring drinking water from a distance in carts for some months.

Among the improvements carried out during the year were—at Belfast, improvement of drainage at the officers' quarters, and the removal of some defective closets; at Enniskillen and Belturbet improvements to drainage; at Dundalk, extension of the town supply of water; at Newry, improved means of flushing latrines; at Londonderry, water laid on to married quarters; at Willowbank, Belfast, improvements to the Camp buildings and huts; and at Holywood musketry camp, improvements to the drainage and water supply.

The hospitals in the district are said to be fairly satisfactory, with the exception of that at Belfast, which is quite inadequate to the wants of the garrison. Half of the barrack block of the depôt Royal Irish Rifles continues to be used as a hospital. The ventilation of the hospitals is said to be satisfactory.

A change was made in the ration during the year, mutton being issued twice a week. No change in quantity.

The clothing of the troops was suitable. No injurious effects were caused by drills, &c., or by the usual gymnastic course, the physical condition of the men trained having, as a rule, improved thereby.

Many calls were made on the troops during the year at the different stations in aid of the civil power to prevent disturbances, and though at times harassing, these duties were not productive of any bad results to health.

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Dublin District.

The Principal Medical Officer, Deputy Surgeon-General R. Webb, reports that the accommodation in barracks was somewhat insufficient in Dublin, at Birr, and in certain barracks at Galway; but on representation this was remedied by sending detachments periodically to the Curragh, and by opening a Cavalry station at Navan to relieve the Island Bridge barracks. At Birr the men were put under canvas in summer, and later a detachment was sent to Tullamore, while at Galway a company was detached to Oughterard, and the detachment at Castlebar increased. With the exception of the new depôt barracks at Renmore, Galway, most of the buildings are old and some not well fitted for soldiers' quarters, and do not meet the requirements of modern sanitation.

The sanitary condition of the barracks in Dublin was a matter for serious consideration on account of the prevalence of enteric fever, especially in the Royal barracks. A special inquiry by a committee of sanitary experts (Sir C. Cameron and Dr. Grimshaw) was appointed, and a report of their proceedings and recommendations has been published. Their principal recommendations were a thorough subsoil drainage of the whole site of barracks, and an extension of the dry area system; removal of considerable portions of the present buildings, and opening up of the narrow lanes in the barracks; removal of boundary wall along Arbor Hill and replacement by railings; improvements in ventilation of barrack rooms; drainage to be improved as to ventilation, stone drains to be replaced by stoneware pipes, and hospital drains to be disconnected with main sewer, &c.

The dual water supply at Richmond barracks being a constant source of complaint by the medical officers stationed there, and the canal water being a source of possible danger to health owing to the carelessness of the men, the Principal Medical Officer advised that the latter should be cut off, as was done in Island Bridge barracks. In Richmond barracks the dry earth system of latrines was about to be introduced.

The water supply of the different stations in the district has been generally of good quality, and when suspicious a supply from other sources was obtained.

The hospital accommodation was generally satisfactory as regards cleanliness, condition of buildings, warming, and ventilation; but it is said by the Principal Medical Officer that in Dublin the Arbor Hill Hospital as regards its construction and the small size of its wards is not well adapted for a station hospital. The hospital accommodation in Dublin is not sufficient for the sick of the garrison, and to prevent overcrowding a considerable number of the slighter cases of sickness were from time to time transferred for treatment to the Curragh.

A considerable number of sanitary improvements were effected during the year, such as improvements in the ventilation of drainage in the Royal barracks, provision of a separate drain from Arbor Hill Hospital to the Liffey, provision of separate cisterns for supply of urinals at Arbor Hill, Linen Hall barracks, &c., improvements in ventilation of Portobello Hospital, improvements in drainage in Richmond barracks, together with many other services both in Dublin garrison and in the district.

Cork District.

The Principal Medical Officer, Deputy Surgeon-General W. Cattell, reports that the general health of the troops continued good throughout the year, and that the sanitary condition of the various stations and barracks was generally satisfactory, and that no sickness appears to have resulted from remediable insanitary conditions, except, possibly, certain cases of enteric fever at Cork. The ventilation of the rooms is very good in most of the barracks, and at some few of the smaller stations, the ventilating shafts required were being gradually added. The lighting and warming is generally satisfactory, the latter having, at some stations, been still further improved. Limestone is largely used in the construction of barracks, and the inner surfaces of exposed walls are frequently damp, and in some places, as at Tipperary, for instance, require in parts an outer protection of cement.

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United Kingdom.

The surface drainage and sewerage are generally satisfactory, and latrines are kept in good order; water flushing is occasionally employed; the dry earth system, with Moule's self-acting closets, is generally in use, but these closets require constant supervision or they are apt to get out of order. Cesspits still exist at Wexford, Spike, Roscrea, and Fethard, where the expense of closets has hitherto prevented their adoption, but at these stations the dry earth system was about to be introduced.

With the exception of temporary pressure at certain stations owing to the influx of recruits or to militia training there was no overcrowding in the district. Increased accommodation for married men is required at Templemore, Kilkenny, and Buttevant, and also at Limerick.

The rations were good throughout the district, the cooking was varied, and the kitchens cleanly and sufficiently equipped.

The coffee bar accommodation has been generally increased throughout the district.

The water supply had to be supplemented at many stations through the failure of ordinary wells and tanks, owing to the exceptional drought, and a sufficient supply was thus maintained. The quality was good. The ablution accommodation is reported to have been generally sufficient.

The hospital accommodation was generally sufficient for requirements, but it is thought that a female hospital is advisable at Cork.

In the larger hospitals cupboards were introduced to contain equipment not actually in use, and are of great benefit to both patients and orderlies.

The recurrence of cases of typhoid fever led to an investigation by a medical committee of the whole sanitation of barracks, and it was found that some drains were untrapped and connected directly with the unventilated sewers of the city, so that elevation and tidal pressure necessarily directed the sewer gases into the local ventilators opening within a dangerous proximity to certain upper windows. The drains were consequently trapped and the ventilators raised.

Curragh District.

It is reported by the Principal Medical Officer, Deputy Surgeon-General R. W. Clifton, that the sanitary condition of the Curragh camp and Newbridge barracks, which the Curragh district comprises, was, generally speaking, good during the year 1887. There were a few cases of enteric fever, but no local insanitary condition could be discovered, either by the medical officers in charge of the cases or by himself, to which their occurrence could be attributed.

The Principal Medical Officer states his opinion that everything is done that is possible for the welfare of the soldiers in the district, and he did not feel called upon to make any suggestions beyond recommending some improvements in the drainage system of the camp, which were referred for action.

At No. 2 station hospital, Curragh, building went on, though not continuously, throughout the year, with the result that all the ward pavilions were completed and equipped, and the nursing sisters' quarters furnished and occupied. The portions of the hospital in progress at the close of the year were the cook-house and the patients' dining hall; the connecting covered corridor between the pavilions was about to be undertaken.

There were no alterations in the scale of the soldiers' diet, which, however, is said to have been ample, and to have been sufficiently varied as to the methods of cooking.

The clothing of the men was in every way suitable, and extra blankets and fuel were issued whenever the climate and season called for it.

The hospital accommodation was sufficient, and the buildings, generally speaking, satisfactory in a sanitary aspect throughout the year.

The gymnastic instruction was of service in promoting the health of the troops undergoing it, and the classes were regularly medically inspected both before and after the course of instruction.

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III.—ON THE HEALTH OF THE TROOPS SERVING IN THE MEDITERRANEAN.

Sickness and Mortality.

I.—Gibraltar.

Gibraltar.

The average strength of the warrant officers, non-commissioned officers, and men serving in the command during the year was 4,614. The force consisted of seven batteries Royal Artillery, four companies Royal Engineers, three of which were relieved by others in the course of the year; four regiments of Infantry, the 1st Battalion South Staffordshire, the 1st Battalion Royal West Kent, the 3rd Battalion King's Royal Rifles, and the 2nd Battalion Royal Irish Rifles, the last named being relieved by the 1st Battalion Norfolk Regiment just at the close of the year; detachments of Departmental Corps and Garrison Staff.

The principal health statistics of these troops, as a whole, will be found in the subjoined table, and those of the individual corps in Abstract XXXIX.

1887. Average Strength.	Admissions.	Deaths			Invalids		Average daily Sick.	Ratio per 1,000 of Strength.				
		In the Command.	Of Invalids.	Total.	Sent Home.	Finally Discharged.		Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged.	Constant Sick.
4,614	3,111	24	5	29	98	85	178·77	674·2	6·29	21·24	7·15	38·09

The improvement which was observed in the general health of the troops in this Command in the previous year has progressed still further, and compared with the corresponding ratios in that year the admission rate for 1887 shows a decline of 169·5 ; the death rate one of 3·22, and the constantly sick rate one of 10·98 per 1,000, and compared with similar average ratios for the preceding 10 years there is a decrease of 159·7 per 1,000 in the rate of admission, one of ·79 in that of mortality, and one of 11·75 in that of constant inefficiency through sickness. The average sick time to each soldier was 13·90 days, and the average duration of each case of sickness 20·62 days, which are shorter than the corresponding periods in the preceding year by 4·01 days and ·61 days, and than the average similar periods in the previous decennium by 4·29 days and 1·19 days respectively.

With regard to individual corps, it is observed from the Abstract alluded to that excluding the 1st Battalion Norfolk Regiment, a few days only in garrison, the highest ratio of admission was 814·7 per 1,000 in the 1st Battalion South Staffordshire Regiment, the next being 748·4 in the 2nd Battalion Royal Irish Rifles, followed by 688·2 in the 1st Battalion Royal West Kent Regiment; the lowest admission ratio of any corps whose strength exceeded 100 was 358·2 in the 1st Battery, 1st Brigade, Cinque Ports Division, Royal Artillery, the next above being 482·0 in the 2nd Battery, 1st Brigade, Lancashire Division. The greatest ratio of mortality in any corps, excluding departments, was 9·68 per 1,000 in the Royal Engineers, and that in the 3rd Battalion King's Royal Rifles was also high, 9·39; in several corps there was no mortality, and the Royal Irish Rifles and South Staffordshire Regiment show low ratios, 3·85 and 4·91 per 1,000 respectively. The highest ratios of inefficiency through sickness were 44·77 and 44·73 per 1,000 in the

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Gibraltar. 3rd Battery, 1st Brigade, Lancashire Division, and the 3rd Battery, 1st Brigade, Western Division, Royal Artillery, respectively, also 44·07 in the Royal Engineers; a very low rate, 15·97, is observed in the 1st Battery, 1st Brigade, Cinque Ports Division, and a rate of 34·11 in the 3rd Battery, 1st Brigade, Eastern Division, Royal Artillery.

With regard to the influence of age on sickness and mortality, it has been calculated that during the year the admission ratio among men under 20 years of age was 480·5 per 1,000, between 20 and 25 years of age it was 814·5, between 25 and 30 years 534·7, and over that age 338·2. Mortality under 20 years of age was at the rate of 2·60 per 1,000, between 20 and 25 years of age 5·16, between 25 and 30 years 3·85, and over that age 10·44.

During their first year's service in the Command, men were admitted into hospital at the rate of 762·9 per 1,000, in their second year at the rate of 619·8, in their third year at the rate of 298·7, and over that time at a still lower rate. Mortality in the first year's residence in the garrison was equal to 4·21 per 1,000, and increased to 5·83 in the second year. In the previous year the highest admission ratio was in the third year of residence, and the mortality rate was greater in the first than in the second year of service in the Command.

The statistics of admission, mortality, &c. from the different groups and orders of diseases are shown in Abstract II.

GENERAL DISEASES.—*Diseases dependent on Morbid Poisons.*—Five admissions are recorded from *eruptive fevers*, they were all cases of measles; one case was contracted on board ship, and the other four were admitted from the North Front, but their origin could not be traced.

Enteric Fever caused 35 admissions and 9 deaths, being in the ratios of 7·6 and 1·95 per 1,000, which compare very favourably with those in the previous year, 36·7 and 6·04, and also with the average ratios for the preceding five years, 10·5 and 2·43 per 1,000 respectively. The rate of mortality to attack, however, 25·7 per cent., is considerably higher than that in the previous year; but this it is thought may be partly due to some of the milder cases being returned as simple continued fever. The medical officer in charge of the station hospital reports that "the cases were all severe, con- "valescence was very protracted, and relapses were frequent. There was "nothing to note unusual in the course of the disease. Pneumonia was a "frequent complication, severe hæmorrhage from the bowels occurred in "three cases, blocking of the femoral vein and great œdema in two cases, and "fatal perforation of the bowels in two cases, one case died from head "symptoms and from exhaustion, the other two fatal cases were complicated "with pneumonia." Simple continued fever caused 105 admissions and no death; the admission ratio was 22·7 per 1,000, which is but little more than half that of the preceding year, and is considerably below the average ratio of the preceding five years. The medical officer in charge in his remarks on this disease states his opinion that "it is not a climatic fever, but depends "on local sanitary defects, and is more prevalent in the hot and dry months "because the water traps of drains then often become dry and are no longer "effective. In almost every instance where several cases of fever have "occurred in a barrack, blocked drains, defective traps, rat holes communi- "cating with sewers, or unknown and disused drains have been discovered "under the floors, and when these defects have been remedied no further "cases have occurred." He also endeavours to prove that "there is a close "connexion between simple continued fever and enteric fever, they are both "admitted from the same barrack at the same time, and when a sanitary "defect is discovered and removed both fevers cease to occur. Buena Vista "barracks, which suffered so severely from fever in 1886, has this year been "comparatively free from it, and Europa barracks which last year gave no "cases has this year given several."

Under the head of *malarial fevers* 3 cases of ague are returned, which are said to have been contracted either in Cyprus or Egypt.

Septic diseases comprised five cases of erysipelas, one of which was fatal. Four of them were idiopathic and had no connexion with each other. The fatal case occurred in hospital in a man under treatment for ulcer of the penis, but the origin of the disease could not be traced.

In the sub-group of venereal diseases *primary syphilis* shows 85 admissions, equal to a ratio of 18·4 per 1,000, the recorded ratio in the previous year

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having been 61·8 per 1,000. The difference is considerable, and if the admission rate for ulcer of the penis be added in each instance, when the ratios would be 138·4 and 179·4 respectively, the difference is still about the same; but it is also seen that the conjoint rate for the year under report does not differ much from that of the average of the previous five years. *Secondary syphilis* caused 182 admissions, or 39·4 per 1,000, as compared with 33·7 in the previous year, but both are higher than the quinquennial average ratio. One death occurred from this disease. *Gonorrhœa* caused 505 admissions, the ratio being 109·5 per 1,000, which shows a decline as compared with that of the preceding year equal to 4·23, and is considerably lower than the average rate for five years. The medical officer in charge states that "venereal disease is "very prevalent in the garrison, and that more than half the cases in hospital "are of this nature, including simple venereal ulcers of course." The total admission ratio for all forms of venereal disease was 287·3, and the ratio of constant inefficiency from these affections, 19·83 per 1,000, which are, however, below the corresponding ratios in the preceding year by 77·7 and 2·01 per 1,000 respectively, but only slightly below the similar quinquennial average ratios.

In group B. are shown one admission for *parasitic disease*, a case of tænia solium, and 39 admissions for *alcoholism*, including 2 cases of delirium tremens, one of which proved fatal. The ratio of admission, 8·5 per 1,000, differs only fractionally from that of the previous year, but is above the average.

The admissions for *debility*, all of which were the result of enteric fever or simple continued fever, were 13 in number, or 2·8 per 1,000, which is considerably below the average as well as the last year's rates.

In the group of general diseases, which are not classified, *rheumatism* caused 111 admissions, equal to a ratio of 24·1 per 1,000. These affections were considerably less prevalent than usual, and than in the preceding year. Some of the cases, however, are said to be very obstinate, and relapses frequently occur on the least exposure. The disease is most prevalent when the wind blows from the east. Six of the admissions were cases of rheumatic fever, all of which did well.

Twenty admissions are recorded for *tubercular diseases*, of which 14 were cases of disease of the lungs; there were 3 deaths from this disease, two of which occurred in invalids who had left the Command.

The *other diseases* of this group comprised five cases of non-malignant growth, which were all successfully treated by operation, one case of malignant disease, which proved fatal, one of anæmia, and one of diabetes.

Local Diseases.—*Diseases of the Nervous System* caused only 7 admissions, 4 for neuralgia, 2 for epilepsy, and one for mental disease. The ratio of admission, 1·5 per 1,000, is, like that of the previous year, considerably below the average.

Diseases of the Eye show a ratio of admission of 10·6 per 1,000, a decrease of 3·1. Of 49 cases 42 were simple conjunctivitis. *Aural* affections caused 29 admissions, or 6·3 per 1,000, of which 24 cases were inflammation of external meatus.

Diseases of the Circulatory System, as in the previous year, caused only two admissions, one of these was for valve disease of the heart, and one of hypertrophy. One death from valvular disease occurred in an invalid.

Diseases of the Respiratory System caused 135 admissions and 4 deaths, including that of an invalid. The admission ratio was 29·3 per 1,000 as compared with 37·8 in the previous year, but is about the average rate. The admissions comprised 121 for bronchitic affections, 10 for pneumonia, some of them very severe, 3 for pleurisy, and one for empyema. The last-named case proved fatal, and there was one death from pneumonia and one from bronchitis.

The admissions for *diseases of the Digestive System* were 359 in number, equal to 77·8 per 1,000, which is identical with the ratio in the previous year, and is below the average. Affections of the mouth and throat caused more than a third of the admissions; dyspepsia caused 96 admissions, nearly all, it is said, due to intemperance, diarrhœa caused 31, and jaundice 15. There were 3 cases of hernia, one of which was strangulated and necessitated operation, which was successful. One case of abscess of the liver occurred in a man who had suffered from dysentery in Egypt, and proved fatal.

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Gibraltar.

Diseases of the Lymphatic and Glandular System, with an admission ratio of 8·5 per 1,000, were only about half as prevalent as in the previous year. All the admissions, 39, were for affections of the inguinal glands.

Diseases of the Urinary System caused only 5 admissions, 2 for incontinence of urine, and 3 for Bright's disease, from which there were 3 deaths, one an invalid at home.

Diseases of the Generative system caused 587 admissions, equal to a ratio of 127·2 per 1,000, which only differs from that in the previous year by an increase of 2·5. All but 33 of the admissions were cases of ulcer of the penis, already spoken of above. Of the remaining cases 24 were orchitis, 5 hydrocele, and 4 urethral stricture.

Diseases of the Organs of Locomotion caused 8 admissions and one death from caries of the frontal bone. *Diseases of the Connective Tissue* caused an admission rate of 16·0 per 1,000, dependent on 74 admissions, all but 4 being cases of abscess, generally slight, and often the result of injury. *Cutaneous affections* gave 185 admissions, the principal causes being eczema, boils, and itch. The admission rate, 40·1 per 1,000, shows a slight increase.

Injuries caused 493 admissions and 3 deaths, being in the ratios of 106·8 and ·65 per 1,000, which are slightly below the corresponding ratios in the preceding year. The greater part of the admissions resulted from contusions, wounds, and sprains, which together numbered 434 cases. Among the remaining 59 cases there were 20 of fractures, of which 2 proved fatal. Trephining was performed in one case of fracture of the skull, but the man died. A second case of fracture of the skull recovered. There was one case of fracture of the spine, a man having while bathing dived into too shallow water; the case proved fatal. Amputation was necessary in a case of compound fracture of three toes, on account of a smash from a heavy shot; also in a case of compound fracture of the thumb, with great laceration, caused by its being caught in a cog-wheel. There were two cases of gun-shot wound, one slight and accidental, the other fatal and suicidal, a man having shot himself through the chest while on sentry, in a state of temporary insanity. Three cases of self-inflicted wound of the throat were admitted, but none died. In two cases a court of inquiry decided that the wound was inflicted under the influence of drink; but in the third case no decision was arrived at as the man was still in hospital at the date of report.

Invaliding.—The number of men invalided during the year was 98, or at the rate of 21·24 per 1,000 of strength. This ratio is lower than that in the preceding year by 5·69, and than the average rate for the previous 10 years by 12·13 per 1,000. The corps which had the highest ratio of invaliding was the Royal Engineers, 70·96 per 1,000, and the lowest was *nil*, in the 1st Battery, 1st Brigade, Cinque Ports Division, Royal Artillery. Among the infantry regiments the highest ratio was 30·52 in the 3rd Battalion King's Royal Rifles and the lowest, 12·27, in the 1st Battalion South Staffordshire Regiment. Taking the ages of the men it is found that among men under 20 years of age the invaliding ratio was low, 7·79 per 1,000, between 20 and 25 years of age it was 21·75, and between 25 and 30 years of age 28·90, declining after that period. In the previous year also the ratios increased in the same order. The invaliding ratio among men in their first year of service was 19·92 per 1,000, that in the second year being 23·32, but in the preceding year these ratios were in reverse order.

Among the causes of invaliding were continued fevers 43 cases, or 9·32 per 1,000, of these 6 were cases of enteric fever; rheumatism 10 cases, or 2·17 per 1,000; tubercular diseases 14, or 3·04; and debility 8, or 1·73 per 1,000.

The number of men finally discharged as medically unfit for further service was 33, being in the ratio of 7·15 per 1,000, as compared with 6·96 in the previous year, and with a decennial average rate of 14·11. The principal disabilities necessitating discharge were tubercular diseases, 6 cases, or 1·30 per 1,000; debility 5, or 1·08; nervous diseases 5, including 2 cases of mental affection; and secondary syphilis 4, or ·86 per 1,000.

Officers.—The average strength was 163; there were 67 attacks of illness, no death, and 9 officers were invalided. The ratio of prevalence of sickness was 411·0, and that of invaliding 55·22 per 1,000, as compared with 386·4 and 62·50 respectively. No disease appears to have been specially prevalent.

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Only 9 cases of simple continued fever and 2 of enteric fever occurred, the latter were very severe, and were both invalided to England. A case of malarious fever, contracted in Morocco, was also invalided. The remaining cases either of sickness or invaliding call for no special remark. *Gibraltar.*

Women.—The average strength of women was 254, the attacks of illness numbered 122, and there were 3 deaths. The ratio of prevalence of sickness was 480·3, and that of mortality 11·81 per 1,000, the former has declined by 106·8, and the latter increased by 8·02 as compared with the corresponding ratios in the preceding year. There were 16 cases of simple continued fever, and 3 of enteric fever, one of which proved fatal. 17 cases are returned as debility, one of which died; there was also one death returned as septicæmia. Among the remaining illnesses were 14 cases of rheumatism, and 21 of diseases of the generative system.

Children.—There were 251 admissions and 17 deaths in an average strength of 436 children, the ratio of prevalence of sickness was, therefore, 575·7 per 1,000 as compared with 492·8 in the preceding year, and the ratio of mortality 38·99 as compared with 42·94. Among the most prevalent diseases were chicken pox 13 cases, measles 32, mumps 11, simple continued fever 32, debility 13, bronchial affections 47, and diarrhœa 22 cases. The causes of mortality were bronchitis 4 cases, diarrhœa 4, convulsions 3, debility 2, and tubercle, anæmia, croup, and enteritis one case respectively.

Sanitary Conditions.—The Principal Medical Officer, Surgeon-General Sir James Hanbury, K.C.B., remarks in his report that a considerable improvement took place in the health of the troops in the Command during the year, and attributes it in great measure to the watchful care maintained over the sanitary conditions generally, the water supply, the ventilation of barracks, the avoidance of overcrowding, &c., and by various improvements which have been effected. "Still," he adds, "much remains to be done in the way of "sanitation. The whole system of soil drains requires to be thoroughly over-"looked, and nothing short of laying down new soil pipes can possibly meet "the urgent requirements under this head. The present soil drains of brick "are defective, and the fall in the lower system of drains is so small that it "is impossible to flush them effectually."

The drinking water supply is obtained from rain water stored in underground tanks. These tanks, from their situation, are liable to pollution, and the remedy for this would be to have iron tanks placed above the level of the ground. The greatest attention is given to the drinking water, and 31 samples were examined during the year.

With regard to the rations of the troops, the Principal Medical Officer states that during three of the winter months Galician beef is supplied, and is of excellent quality; and for the remaining portion of the year Barbary beef is issued, which is inferior to the former at all times, and during the hot season is very much so. He, therefore, recommends that, if practicable, Galician beef should be issued throughout the year.

The means of cooking are reported to have been satisfactory.

The clothing of the troops was good, and suitable to the climate; and the bedding also satisfactory.

Ablution arrangements were satisfactory, and bathing parades were held frequently during the hot season.

The training of the young soldiers in gymnastic exercises was regularly attended to with satisfactory results.

During the last quarter of the year a mild epidemic of scarlatina appeared among the children of the civil population, but no cases occurred among the military. With a view, however, of meeting any contingency under this head the school-house at Windmill Hill was opened as an infectious hospital for women and children of the garrison. This structure consists of a large, well ventilated, and well lighted room, appropriated as a ward, with two small rooms and a kitchen for attendants.

The following are among the principal sanitary improvements which were effected during the year:—At the North Front stoves were provided for the soldiers' huts, eaves and gutters were also added to them, and an additional tank was erected. Improvements were made in the barrack drains of the Grand Casemates. In the Town Range Barracks the ventilation was increased, and the drainage improved and ventilated. In the Government quarters, City Mill

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Gibraltar. Lane, ventilation was improved and new windows added. In the South Barrack sheds, the back yard was concreted and drains provided. At Buena Vista, certain quarters were reconstructed, and wood substituted for stone in the flooring of some rooms. Watercloset arrangements in officers' quarters were improved. A 200 gallon tank fixed to cookhouse. At Europa, the ridge ventilation of certain huts was improved, the water storage accommodation at the women's washhouses increased, and a 500 and 800 gallon water tank provided to the Brewery and Defensible Barracks respectively. At the Station Hospital, the drainage was improved on the south side, the hot-water supply to baths improved, and additional ventilation was provided to several rooms and quarters.

Malta.

II.—MALTA.

The average strength of warrant officers, non-commissioned officers, and men serving in the garrison during the year was (with the exception of the Royal Malta Fencible Artillery) 5,499. The following was the composition of the force:—The headquarters and 7 batteries Royal Artillery, 2 companies Royal Engineers, 1st Battalion Duke of Cornwall's Light Infantry, 1st Battalion Royal Highlanders, 1st Battalion Gordon Highlanders, half battalion Royal Berkshire Regiment, Garrison Staff and Departmental Corps. This strength was augmented in the early part of the year by the arrival from Egypt of a battery Royal Artillery, 2nd Battalion Essex Regiment, and the 1st Battalion Shropshire Light Infantry. The 2nd Battalion South Yorkshire Regiment left the garrison for India in February.

In the following table are shown some of the more important of the statistics of sickness and mortality among the troops generally during the year, and in Abstract XXXIX. will be found those of particular regiments or corps:—

1887. Average Strength.	Admissions.	Deaths			Invalids		Average daily Sick.	Ratio per 1,000 of Strength.				
		In the Command.	Of Invalids.	Total.	Sent Home.	Finally Discharged.		Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged.	Average Constantly Sick.
5,499	3,011	32	4	36	65	39	197·63	547·5	6·54	11·82	7·09	35·94

Compared with the corresponding ratios in the preceding year, the decrease in admission and constantly sick ratios is great, being 177·7 and 10·68 per 1,000 respectively; the mortality ratio also has declined by ·63. In comparison with similar average ratios for the previous 10 years, the decrease is still more marked in each case, being 302·7 in the case of admission, 3·40 in that of death, and 15·19 in that of constant inefficiency through sickness. The average sick time to each soldier was 13·12 days, and the average duration of each case of sickness 23·95 days, the former being shorter than the corresponding period in the previous year by 3·90 days, and than the average period for the preceding 10 years by 5·54 days, while the latter is longer in each of these comparisons by half a day and two days respectively. With regard to individual corps, it is observed that the highest admission and constantly sick ratios occurred in 2nd Battery, 1st Brigade, Northern Division, Royal Artillery, 1102·9 and 98·67 per 1,000 respectively; the battery was quartered chiefly at Fort St. Angelo. The next highest ratio of admission, 991·4, was given by the 8th Battery, 1st Brigade, South Irish Division, and the next highest ratio of constantly sick, 47·52, in the 7th Battery, 1st Brigade, South Irish Division, both batteries being quartered at Upper St. Elmo. The lowest ratio of admission, exclusive of those of departmental corps, was 382·8 in

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the 2nd Battalion Royal Berkshire Regiment quartered at Fort Ricasoli. The lowest ratio of constantly sick was 23·52 in the 6th Battery, 1st Brigade, Cinque Ports Division, Royal Artillery, at Fort Manoel. The highest mortality ratio was 29·41 in the 2nd Battery, 1st Brigade, Northern Division, Royal Artillery, the next being 11·11 in the 1st Battery, 1st Brigade, Southern Division; in three batteries there was no mortality, and in the 1st Battalion Royal Highlanders there was the low ratio of 3·53 per 1,000. *Malta.*

With regard to the influence of age on sickness and mortality it is calculated that in the year under report the ratio of admission among men under 20 years of age was 396·3 per 1,000, and that among men between 20 and 25 years of age 714·4; in the next quinquennium the ratio fell to 358·4, after which period the rate again slightly increased. In the previous year also the highest admission ratio was among men between 20 and 25 years of age. Mortality was at the rate of 9·32 per 1,000 among men under 20 years, 7·91 between 20 and 25 years of age, and 2·62 over that age. With regard to the effect of service in the Command on sickness and mortality, it is found that among men under one year's service the admission ratio was 524·1 per 1,000, among men in their second year of service 494·9, among men in their third year 1034·2, falling again after that period. The order in which these ratios succeed each other is not the same as that in the preceding year. Mortality in the first year of service in the Command was at the rate of 8·64 per 1,000, falling to 4·23 in the second year of service, and to 4·02 in the third year of service.

The admissions, deaths, &c. in the different groups and orders of diseases are shown in Abstract III.

General Diseases.—*Diseases dependent on Morbid Poisons.*—Three admissions are recorded under the head of *eruptive fevers;* two of these were cases of small-pox, the first of which occurred in a corporal, Royal Artillery, living in the Camerata married quarters, and the second in an orderly who was in attendance on the first, both these cases recovered, and the disease did not spread further. The remaining admission was a case of measles.

Enteric Fever caused 14 admissions and 5 deaths, being in the ratios of 2·5 and ·91 per 1,000. These have declined from the corresponding ratios in the preceding year by 4·7 and ·78 respectively, and are also below the similar average ratios for the previous five years by 15·5 and 2·71 respectively. The percentage of deaths to attacks was 35·7, that of the preceding year being 23·5, and that of the quinquennial average 20·0. Out of the total number of cases 12 were treated in Cottonera Hospital, and all the deaths occurred there; the remaining two admissions were at Forrest Hospital. The Principal Medical Officer, Surgeon-General J. Sinclair, remarks that "there were no cases of this disease "on the Valetta side, which speaks volumes for the water supply, this being "the only district where aqueduct water was in general use throughout the "year." With regard to the cases at Cottonera, the medical officer in charge remarks that "most of these were of a very severe type, and several succumbed "early to the virulence of the poison. The attack began insiduously, and "many remained out of hospital and continued to perform their duties "for a week or 10 days after they began to feel out of sorts. As usual the "young soldiers were chiefly attacked, the average age being 21½ years. The "cause remains obscure, but most probably the insanitary condition of the "wine shops and other houses frequented by the men were in fault in many "cases, and not insanitary conditions inside barracks or quarters, which "are, generally speaking, reported as being in excellent sanitary condition; "but in the instance of cases sent in from Delimara it is more than probable "that the disease was due to a defect in the drain of that fort."

"It is rather remarkable that only one woman contracted the disease, "although the women's quarters were close to the various barracks and had "the same water supply, &c. This is another reason for thinking that the "disease is seldom contracted inside the barracks."

For the cases which were treated at Forrest Hospital, it is said that no insanitary condition could be traced as likely to have given origin to the disease.

Under the head of *simple continued fever* are returned 570 admissions, 7 deaths, and 54·12 constantly sick, as compared with 730 admissions, 2 deaths,

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Malta.

and 55·03 constantly sick in 1886. The ratio of admission, 103·6 per 1,000, is below that of the previous year by 50·5, and also below the quinquennial average rate; but the ratio of mortality, 1·27 per 1,000, is higher by ·85 than that of the preceding year, and is also above the average. The Principal Medical Officer remarks that "the difference in the number of admissions is "very marked, and, although attended by heavier mortality, is satisfactory. "In all these cases great attention has been paid to the dieting, reduction of "temperature, and to guard against relapse. The very hot weather had pro- "bably much to do with the admission rate in summer, and suggestions for "protecting the health of the soldiers, generally, were issued from time to time; "but there are occasions when the soldier can unreasonably expose himself to "the heat of the sun, with which it is almost impossible to deal."

The Principal Medical Officer also quotes from the report of Surgeon Bruce, M.S., as follows: "Many cases of Malta fever occurred among the "infantry in Valetta in 1887, but not one single case of enteric fever. That no "improvement has taken place in regard to the former fever in spite of "improved drainage and water supply would go to point out that in all pro- "bability the poison of Malta fever is an aerial one. The difficulty of proving "this by experiment is very great, as the microbe isolated from the organs of "the fatal cases requires such a long time and high temperature for its growth "that it is completely masked by rapidly growing micro-organisms."

Cholera.—Though there was a considerable epidemic of cholera prevailing among the civil community, principally in the months of August, September, and October, there was but one case among the troops. This case proved fatal a few hours after attack. The man was admitted from the barracks of the densely populated and insanitary district of Isola, and it appears that he had been indulging excessively in over-ripe fruit, particularly that of the prickly pear. The Principal Medical Officer attributes the remarkable immunity of the troops in this severe epidemic to the following causes: "To sanitary measures rigorously carried out by attending not only to the "quantity of air breathed by the men, but also to its purity, by diminishing "overcrowding, increasing floor space, and by placing half the population "under canvas to ensure the above.

"By giving good food in sufficient quantity, and by varying the modes of "cooking. By giving hot coffee to men going on duty before breakfast and "during the night.

"By guarding the water supply from pollution, by filtering doubtful "supplies, and by boiling it in some cases where deemed advisable.

"By absence of nuisance, rapid removal of excreta and all refuse, good drainage, "full use of deodorants, avoidance of damp floors and stairs, and of exposure "to sun, diminution of night duties and excessive fatigues, comfortable "clothing, warm bedding, cleanliness of person, dwellings, and surroundings, "&c., &c."

Dysentery caused 19 admissions and 2 deaths, being in the ratios of 3·4 and ·36 per 1,000 respectively, as compared with 11·2 and ·63 in the preceding year. Of the cases 14 were treated at Cottonera, 4 at Valetta, and one at Forrest. Three of the cases were transferred from an Indian troopship, and two of these proved fatal.

The remaining admissions in this sub-group were two, cases of mumps.

Malarial Fevers.—In this sub-group there were 22 admissions and 5 deaths, being in the ratios of 4·0 and ·91 per 1,000, which are higher than the corresponding ratios in the preceding year by 1·7 and ·70 respectively. Compared with average rates, however, the admission rate shows a decrease and the death rate an increase. The cases comprise 9 of ague and 13 of remittent fever, with 5 deaths from the latter. Nine of the remittent fever cases and 3 deaths occurred at Forrest, 3 cases and 2 deaths at Cottonera, and one case at the Sanitarium, Citta Vecchia.

Septic diseases comprised two cases of erysipelas, both of which recovered.

In the sub-group of venereal disease *primary syphilis* shows 85 admissions and 6 57 constantly sick, being in the ratios of 15·5 and 1·19 per 1,000 respectively. In the preceding year the ratios were 18·8 and 1·62 per 1,000. If to the sickness for primary syphilis that for simple venereal ulcer be added, the admission ratio for primary venereal sores equals 33·5, and the ratio of constantly sick 2·77 per 1,000; these are above the corresponding ratios for the

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previous year by 4·2 and ·64, but below the average ratios for the preceding five years by 8·3 and ·77 respectively.

Secondary syphilis caused 43 admissions, and 4·47 men were constantly sick. The ratios per 1,000 were, therefore, 7·8 and ·81, and are lower than those in the previous year by 6·7 and ·16, and than the quinquennial average rates by 9·3 and ·46 respectively.

Gonorrhœa shows 193 admissions, equal to 35·1 per 1,000, and 13·19 men were constantly sick, or 2·40 per 1,000. These ratios are also lower than the corresponding rates in the preceding year by 19·8 and 1·18, and than the average ratios for the previous five years by 31·8 and 2·10 respectively.

Including all forms of venereal affection the ratio of admission was 76·4 per 1,000, showing a decline of 22·3 as compared with the rate in the preceding year, and one of 49·3 as compared with the average rate. The ratio of constant inefficiency on account of these diseases was 5·98 per 1,000, being less than in the previous year by ·69, and below the average by 3·33.

The Principal Medical Officer remarks that police supervision still continues with beneficial effect. He also states that many cases of venereal disease were transferred from troopships arriving at the port with troops for the garrison.

In the succeeding group of diseases there are eight admissions shown under the head of *parasitic diseases*, all being cases of tænia solium, and 15 admissions for *alcoholism*, one of which was a case of delirium tremens; the admission rate for affections due to alcoholic excess was 2·7 per 1,000, as compared with 4·2 in the previous year.

Debility caused 71 admissions, equal to a ratio of 12·9 per 1,000, which has declined by 4·6 from that of the previous year, and is also below the average. The cases were chiefly the result of protracted fevers.

In the next group of diseases are recorded 160 admissions for *rheumatism*, the ratio being 29·1 per 1,000, which is below that in the preceding year by 4·9, and also below the average. Three of the admissions were cases of rheumatic fever, but all did well. It is said that many of the cases of rheumatism were the sequelæ of attacks of "Malta fever."

Tubercular Diseases were the cause of 13 admissions, all being cases of lung disease; there were also four deaths from this cause, two of them being invalids after having left the garrison. The admission ratio differs but very slightly from that in the previous year, but the death rate shows a decrease.

Other diseases of this group were the cause of 15 admissions, principally for non-malignant growth.

Local Diseases.—*Diseases of the Nervous System.*—For these affections there were 30 admissions, including seven for mental disease, but no death. The admission ratio, 5·5 per 1,000, is somewhat lower than that in the previous year, but considerably below the average. In addition to the cases of mental affection the principal causes of admission were neuralgia and epilepsy.

Diseases of the Organs of Special Senses comprised 47 admissions for ophthalmic affections, 43 for aural diseases, and 2 for epistaxis. The admission ratios compare favourably with those of previous years. Of the eye cases all but 7 were simple conjunctivitis, and of the ear cases all but 6 were inflammation of the external meatus, many of the latter due to bathing and diving during the summer months.

Diseases of the Circulatory System were the cause of 29 admissions, and the ratio of admission was 5·3 per 1,000, considerably below the average, as well as the previous year's rate. Of the cases two were valve disease of the heart, four varicose veins, and all the remainder palpitation, which, it is remarked by the medical officer in charge at Valetta, "are, perhaps, induced "by climate, with excess both in drink and tobacco among young soldiers, "to which as an exciting cause may be added the many steep ascents by steps "in the streets in and about Valetta."

Diseases of the Respiratory System.—For these, 85 admissions and 5 deaths, including 2 of invalids, are recorded. The admission rate is but little more than half that in the previous year, and less than half the average rate. The mortality rate, however, is rather in excess in both these comparisons. 58 of the cases were bronchial attacks, and among the remainder were 6 of pneumonia and 8 of pleurisy. The deaths comprised 3 from pneumonic phthisis, 1 from pneumonia, and 1 from pulmonary apoplexy.

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Malta.

Diseases of the Digestive System were the cause of 468 admissions and 2 deaths, being in the ratios of 85·1 and ·36 per 1,000, which are lower than those in the preceding year by 12·7 and ·06 per 1,000 respectively. These ratios do not include the sickness from dysentery as formerly; but even if this were added they would be a good deal below the average. The principal causes of admission were affections of the mouth and throat 112 cases, dyspepsia 111, diarrhœa 96, and hepatic affections 103 cases, including 81 of jaundice, and 2 of abscess of the liver, both of which proved fatal. The Principal Medical Officer alludes to a severe outbreak of diarrhœa and vomiting, with cramps and prostration, which took place one day in December, and which were due to poisoning by milk, probably to a ptomaine, the result of decomposition and fermentation. The cases were similar to cholera, but their history, the sudden onset, the number and class attacked, the marked presence of tenesmus and tormina, with the absence of profound collapse and of sunken face, and altered voice, &c. negatived that disease. All attacked (except two) were fit for duty on the following day.

Diseases of the Lymphatic and Glandular System caused 35 admissions, chiefly affections of the inguinal glands, and were rather more prevalent than usual.

Diseases of the Urinary System caused 9 admissions, and *diseases of the generative system* 172 cases, of which 99 were ulcer of the penis; of the remainder the principal were orchitis and urethral stricture. The admission ratios of both these orders show a slight increase.

Diseases of the Organs of Locomotion caused 34 admissions, principally cases of synovitis, and were more frequent than usual; while *diseases of the connective tissue* and *skin diseases* were less frequent, their ratios of admission, 27·3 and 33·8 per 1,000, showing a decline of 8·8 and 15·0 respectively.

Injuries.—The admission rate for injuries was 87·0 per 1,000 as compared with 97·1 in the previous year, and the death rate was ·73 as compared with ·84. General injuries caused 3 admissions and 4 deaths. The admissions were cases of sunstroke, exhaustion, and multiple injury, one case respectively; and of the deaths 3 were due to accidental drowning, and the fourth to asphyxia from plugging of the air passages by foreign substances. Local injuries caused 476 admissions, and notably among them were 73 for sprained ankle; 67 for scalp wound, and 52 for contusion of face. None of the cases, however, demand special notice.

Invaliding.—The number of men invalided home during the year was 65, being in the ratio of 11·82 per 1,000 of strength, which is lower than the corresponding ratio in the preceding year by 4·43, and below the average rate of the preceding 10 years by 16·44. The highest ratio of invaliding in any particular corps was 32·78 per 1,000 in the 2nd Battalion South Yorkshire Regiment, followed by 30·76 in the Royal Engineers; in two batteries of artillery there was no invaliding, and the lowest ratio was 2·90 in the 2nd Battalion Essex Regiment. With regard to the effect of age on invaliding, it is noticed that among men under 20 years of age the ratio was 13·99, between 20 and 25 years of age 12·23, between 25 and 30 years 8·17, then rising again. As to the effect of service in the Command, it is observed that the ratio of men invalided in their first year was 14·55, in their second year 8·03, in their third year 10·06, and then in increasing ratios. The principal causes of invaliding were fevers 9 cases, or 1·64 per 1,000; debility 9 cases; tubercular diseases 9, and diseases of the respiratory system also 9 cases.

The number of men finally discharged the service by invaliding was 39, or 7·09 per 1,000, which is lower than in the previous year by 5·36, and than the decennial average by 8·09. The chief disabilities causing discharge were nervous affections 9 cases, including 6 of mental disease, tubercular diseases 6 cases, debility 5, and diseases of the circulatory system 5 cases.

Officers.—The average strength was 180; there were 90 attacks of illness, 3 deaths, and 4 officers were invalided to England. The ratio of prevalence of sickness, 500 per 1,000, was lower by 206·6 than in the previous year; the invaliding ratio, 22·22 per 1,000, was also lower, by 31·11. The principal causes of illness were fevers, of which there were 23 cases, disorders of the digestive system, 22 cases, 6 being hepatic affection, and injuries, 17 cases. The deaths were due to bronchitis, cirrhosis of the liver, and fracture of the

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skull. The causes of invaliding were fevers, 2 cases, and synovitis and injury to the elbow, one case respectively. *Malta.*

Women.—The average strength was 225, and the admissions numbered 217; the ratio was therefore 964·4 per 1,000 as compared with 739·3 in the previous year. There were 7 deaths, being in the ratio of 31·11, which is an increase in this comparison. Among the cases treated were 45 of fevers, among which were three of enteric fever; debility caused 56 admissions, digestive diseases 32, and diseases of the generative system, 23 cases. The deaths were 3 from fever, and 1 from debility, heart disease, metritis, and hæmorrhage respectively.

Children.—The average strength of children was 393, and there were 232 cases of sickness and 29 deaths. The ratios per 1,000 were 590·0 and 73·78 respectively, the former showing a decrease of 117·8 and the latter an increase of 24·40. Among the cases treated were 29 of fevers, 42 of bronchial affections, 22 of teething, and 47 of diarrhœa. The deaths were, diarrhœa 8 cases, teething 3, debility 3, simple continued fever, convulsions, bronchitis, atelectasis, enteritis, tubercular disease, and premature birth, 2 cases each, and one from dysentery.

Sanitary Conditions.—The Principal Medical Officer reports that "the health "of the troops and their families in this Command during the year has been "extremely satisfactory, and although the strength of the garrison has been "larger, the occurrence of sickness among the troops has been less than "during the previous year, which was a very healthy one. The improved "health of the troops was chiefly attributable (though assisted by other minor "causes) to the many and important sanitary improvements which have been "effected in the island during the preceding few years; and it is very satisfactory "to note that the improvement has since continued to progress steadily, and "that although during the past year cholera in an epidemic form prevailed in "the island among the civil population for about four months, only one case "occurred among the troops, an immunity due, without doubt, to the "unremitting attention paid to the hygienic condition of their barracks and "surroundings, and the adoption of every precaution calculated to guard "them against the invasion of epidemic disease.

"The state of the drainage has been carefully attended to. The water "supply has been good and sufficient, being conveyed from the aqueduct and "delivered direct by iron pipes to the barracks, thus obviating the possibility "of contamination *en route*. Constant supervision has been exercised with a "view to procure for the occupants of the various barracks a liberal allowance "of cubic space and superficial area, especially during the summer months, "when arrangements were made to enable more than half the number of men "from each room to sleep in tents at night, and unhealthy rooms to be "entirely unoccupied. Pressure in barracks was still further reduced during "these months by sending detachments to the outlying Forts at Delimara, "Ta Sile, Musta, &c.

"Most of the barracks are old case-mated buildings, constructed for the "purpose of defence rather than as hygienic habitations for troops; many of "them are situated in dirty and densely crowded neighbourhoods, and several "are faulty in construction and defective in ventilation. All defects, however, "not of a radical nature have, as far as possible, been corrected.

"The rations have been of good quality and have been well cooked, varied "occasionally, and the supply of fresh fruit and vegetables has been satis-"factory.

"The means of ablution and bathing have been satisfactory as a rule, and "during the summer months bathing parades were held regularly.

"The clothing of the men and their bedding have been good and suitable. "The duties have not been excessive, and have not had any injurious effect "on health; and in the summer all unnecessary fatigue was guarded "against."

Among the sanitary improvements which were effected during the year may be mentioned the following:—Improvements in drainage of officers' quarters, Auberge de Baviere, of the army bakery at Strada Forni, and of yards at Fort Manoel, improvements in ventilation of ablution rooms at St. James's Cavalier, of cook-houses at Lower St. Elmo, of a barrack-room at Fort Ricasoli, of the guard-room at Salvatore barracks, and of the canteen and of the prisoners' room at Vittoriosa barracks. Provision of bathroom at St. Francis barracks.

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Malta.

Aqueduct water supply connected with Sanitarium Citta Vecchia. Connexion of Royal Engineers' workshops at Fort Sliema with water main at Cambridge battery. Conversion of existing water latrines into dry earth latrines at several of the Forts.

Royal Malta Fencible Artillery.

The average strength of the Royal Malta Fencible Artillery was 360 non-commissioned officers and men, and the chief statistics of their sickness and mortality are shown in the following table:—

1887. Average Strength.	Admissions.	Deaths			Invalids		Average daily Sick.	Ratio per 1,000 of Strength.				
		In the Command.	Of Invalids.	Total.	Sent Home.	Finally Discharged.		Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged.	Constantly Sick.
360	238	1	—	1	—	8	9·06	661·1	2·78	—	22·22	25·16

The ratio of admission has declined, as compared with that in the previous year, by 46·4 per 1,000; there is a fractional increase in the constantly sick rate, and the death rate, 2·78, compares with *nil* in the former year. With regard to the average ratios for the preceding 10 years, the difference between them and those of the year under report is only fractional in the case of admission and constantly sick, but the death ratio has declined by 3·01. The average sick time to each soldier was 9·18 days, and the average duration of each case of sickness 13·89 days, the former being about the same, but the latter longer by 1·08 days, than the corresponding periods in the preceding year, while both are fractionally longer than average similar periods in the preceding 10 years.

General Diseases.—*Diseases dependent on Morbid Poisons.*—The number of admissions for simple continued fever was 22, equal to a ratio of 61·1 per 1,000, which is lower than in the previous year by 42·0. The cases were generally mild in character.

During the epidemic of cholera which prevailed among the civil population only one case occurred in this corps, but this ended fatally.

Venereal diseases caused in all 17 admissions, 2 for primary syphilis, 1 for secondary disease, and 14 for gonorrhœa; the total admission rate amounted to 47·2 per 1,000, slightly in excess of that in the preceding year. The ratio of constant inefficiency on account of these affections, 3·39 per 1,000, is the same as in the foregoing year.

Nine admissions are recorded for rheumatism, equal to a ratio of 25 per 1,000. Of the cases, one was a severe attack of rheumatic fever.

Local Diseases.—There were no admissions for diseases of the nervous system, but all other orders of local diseases were represented, though some only to a very slight extent. Respiratory diseases caused 22 admissions; all but one, a case of pleurisy, were bronchial attacks; these affections, however, were much less prevalent than in the previous year. Digestive disorders caused 37 admissions against 40 in the preceding year. Dyspepsia and affections of the mouth and throat caused the majority of the attacks. The admissions for cutaneous affections were 35 in number, principally boils and ulcers.

Injuries, 43 admissions, were less frequent than in 1886; there were none of any particular importance.

Invaliding.—The number of men invalided was 8, higher than usual it is said, but six of them were over 21 years' service. The ratio to strength, 22·22 per 1,000, is higher than in the previous year by 8·30.

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Officers.—The strength of officers was 22, and 18 cases of sickness were under treatment during the year; the most prevalent complaints being bronchitis and sore throat. *Malta.*

Women and Children.—The average strength of the former was 38, among whom there were 12 cases of sickness, only two of which were serious, 1 of rheumatic fever, and 1 of local paralysis; the average strength of the latter was 126, and among these were 41 attacks of illness. The principal diseases were teething, fevers, and diarrhœa; and there were 3 deaths, 2 from cerebral disease, and 1 from debility.

Sanitary Conditions.—The medical officer in charge, Surgeon-Major L. Manché, M.D., reports that all the forts occupied by the men were kept clean and in good sanitary condition. At Fort Lascaris, where the head-quarters of the regiment are stationed, an improvement has been made by providing a constant supply of water for drinking and cooking purposes, and another for washing and flushing. Cleanliness of barracks was well attended to, ventilation was satisfactory, and there was no overcrowding. The means of cooking are sufficient, and the kitchens clean. With regard to the plan, noticed in last report, of giving the men a money allowance in lieu of rations, the medical officer states his opinion that it is not calculated to improve the efficiency of the men, and that they should be allowed a daily meat ration.

III.—Cyprus.

The Senior Medical Officer, Brigade-Surgeon G. Elmsley Will, reports that the average strength of warrant officers, non-commissioned officers and men was 472, and the force was composed of the head-quarters and half of the 1st Battalion Royal Berkshire Regiment, detachments of Departmental Corps and Garrison Staff. No change took place in the garrison during the year, except the departure of a few time-expired men and invalids for England. *Cyprus.*

The principal health statistics of these troops are given in the following table:—

1887. Average Strength.	Admissions.	Deaths			Invalids		Average daily Sick.	Ratio per 1,000 of Strength.				
		In the Command.	Of Invalids.	Total.	Sent Home.	Finally Discharged.		Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged.	Constantly Sick.
472	335	3	—	3	9	7	17·67	709·8	6·36	19·07	14·83	37·43

Comparison of these results with those of the preceding year shows that there was a great improvement in the health of the troops during the year under report, and the ratios of admissions, mortality, and constantly sick have declined by 362·5, 4·64, and 13·38 per 1,000 respectively. Compared with the average ratios for the preceding nine years the decrease is still more marked in each instance; but it must be remembered that these average ratios are very high, owing to the great amount of sickness that occurred amongst the troops during the first year or two of the occupation of the island.

The average sick time to each soldier was 13·66 days, and the average duration of each case of sickness was 19·25 days; the former being shorter than the corresponding period in the previous year by nearly five days, and the latter longer by nearly three days; and in comparison with the similar average periods for the preceding nine years there is a considerable decrease in the former, but a slight increase in the latter.

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Cyprus.

The stations occupied by the troops were Polimedia, Limassol, Nicosia, Peripedia, and Mount Troodos. All the troops, with the exception of two non-commissioned officers left at Limassol, were stationed at Troodos from the 6th June to the 7th October, and two companies remained at Peripedia, intermediate between Troodos and Polimedia, until 31st October.

Compared with the previous year's return, it is observed that the health of the men of the Berkshire Regiment improved considerably, the ratio of admission having fallen from 1180·0 to 734·2 per 1,000. Three deaths occurred in this regiment, and the constantly sick rate was 39·56. The health of the Garrison Staff and Departments was good, and no fatal cases occurred in them.

Taking the troops according to age, it is found among men under 20 years the admission ratio was 239·1 per 1,000, among men between 20 and 25 years it was 978·3, and in the next quinquennium it declined to 420·0. The deaths all occurred in men between 20 and 25 years. With regard to service in the Command, the admission ratio of men in their first year was 687·8 per 1,000, of men in their second year 709·5, and over that time 922·0. The deaths all took place in the second year of service in the Command.

The admissions and deaths in the different groups and orders of diseases are given in Abstract IV.

GENERAL DISEASES.—*Diseases dependent on Morbid Poisons.—Enteric fever* caused 3 admissions and 1 death, being in the ratios of 6·4 and 2·12 per 1,000 respectively, as compared with 17·3 and 7·86 in the previous year, and with 27·5 and 7·76, the average ratios for the preceding five years. One of the cases occurred at Polymedia, and terminated fatally; the other two cases were admitted at Troodos, but one of them was believed to have been contracted at Limassol and the other at Polymedia. The Senior Medical Officer remarks that several cases of enteric fever among the civil population have come under his notice. *Other continued fevers* caused 20 admissions, at the rate of 42·4 per 1,000, which is greatly below the corresponding ratio in the previous year, and is also below the average rate. The chief cause of these fevers is said to have been exposure to the sun. *Dysentery* was the cause of 11 admissions, but no death. The admission ratio, 23·3 per 1,000, is lower than that of the preceding year by 11·3. Concerning these cases the Senior Medical Officer remarks that "9 occurred at Troodos; the water was analysed and found of "good quality, the sanitary arrangements appeared good, and the only reason "which can be assigned for the disease is that the camp has been pitched on "the same ground for so many years. One of the cases admitted at Poli-"media was a relapse in a patient who had suffered at Troodos, and the other "occurred in a man who had served in Egypt." *Malarial fevers* caused 35 admissions, equal to a ratio of 74·1 per 1,000, which is less than half that in the previous year, and is also a good deal below the average. 25 of the cases occurred at Polymedia, 8 at Troodos, and 2 at Nicosia. 32 were cases of ague, 16 of the patients had suffered previously in Egypt, the remainder were first attacks. 25 of the men had served in Egypt, but the other 7 came direct from England. There were 3 cases of remittent fever, all severe, at Polimedia, and one proved fatal.

In the sub-group of venereal affections *primary syphilis* caused 20 admissions, equal to 42·4 per 1,000, which is about half the average rate, and considerably below the ratio in the preceding year, which reached 144·6. *Secondary syphilis* also shows a decrease, the admission rate, 23·3 per 1,000, being lower by 12·9 than that in the previous year, and lower than the average rate by 5·2. *Gonorrhœa*, on the other hand, has increased in both these comparisons, the admission ratio, 120·7, being above that of the previous year by 70·4, and above the average by 47·2. Including all forms of venereal disease, the total ratio of admission was 186·4 per 1,000, which is lower than that of the previous year by 49·4, but almost identical with the average rate. The ratio of constant inefficiency on account of these diseases was 12·35 per 1,000; this is below the rate in the preceding year by 3·66, but is fractionally above the average rate.

Rheumatism caused 9 admissions, equal to 19·1 per 1,000, which is slightly above the average rate, though below last year's rate. One of the cases was rheumatic fever, but was not of a very serious character.

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Cyprus.

LOCAL DISEASES.—There was no sickness from *diseases of the Nervous System* during the year, and only a few cases of affections of the *organs of special sense*, giving a ratio of 23·4 per 1,000, rather above the average. *Diseases of the circulatory system* were represented by one admission, a case of hypertrophy of the heart. *Respiratory affections* caused 8 admissions, 4 for bronchitis, 2 for pleurisy, and 2 for pneumonia; one of the latter was fatal. The admission ratio was 17·0, about the same as in the previous year. *Diseases of the digestive system* caused 35 admissions, equal to a ratio of 74·1 per 1,000, which is lower than that in the preceding year by 61·1, and also below the average rate. The principal causes of admission were diarrhœa, dyspepsia, and quinsy, but none of the cases were of importance. Of the remaining orders of local diseases, *cutaneous affections*, and *diseases of the connective tissue* caused some sickness, the former at the rate of 48·7 per 1,000, the same as in the previous year, the latter at the rate of 42·4, an increase of 9·4. In other orders there was but little sickness.

Injuries caused 52 admissions, or at the rate of 110·2 per 1,000, being slightly more frequent than in the previous year, and above the average. All but six of the admissions were due to contusions, wounds, or sprains. There was one case of gunshot wound of the ear caused by a man accidentally firing off a round of blank ammunition in the barrack-room; there was also a case of fracture of the radius, and one of concussion of the brain, but the remaining cases were not of great moment.

Invaliding.—Nine men were invalided home during the year, being in the ratio of 19·07 per 1,000, above the rate in the previous year by 8·07, but below the average rate by 22·12. All the cases belonged to the Berkshire Regiment. The invaliding occurred chiefly in men of 20 to 25 years of age and under 2 years' service in the Command. The principal causes of invaliding were nervous affections 3 cases, and enteric fever 2 cases. There were 7 men finally discharged the service by invaliding, equal to a ratio of 14·83 per 1,000, rather above the average rate. The causes of discharge were nervous affections 2 cases, and debility, deafness, abscess, muscular atrophy, and wound 1 case respectively.

Officers.—The average strength was 27, and there were 5 cases of sickness, 3 being for sprains. The sick rate, 185·2 per 1,000, shows a considerable reduction.

Women and Children.—The average strength of women was 28, and there were 31 cases of illness, causing a ratio of 1107·1 per 1,000, which, though high, is less than in the preceding year. The principal illnesses were fevers, dysentery, and neuralgia. Children, with an average strength of 43, showed 25 attacks of illness, being in a ratio of 581·4 per 1,000, which is lower than last year's rate by 307·5. 13 of the admissions were cases of fever, one of which was enteric and three remittent fever. Two deaths occurred, one from convulsions and the other from debility.

Sanitary Conditions.—The Senior Medical Officer reports generally in favourable terms of the sanitary condition of the different stations in the island. With regard to Polimedia, he remarks that the year was a very healthy one, due in great measure to the small rainfall during the winter, in consequence of which the salt lakes near the camp at Polimedia were completely dried up. At this station during the year a large recreation room was built, which proved a great boon to the men; it is well lighted and warmed, and is a great improvement on the tents formerly used for this purpose. New stoves were placed in the cook-houses, both of barracks and hospital, and small ones in each married quarter.

The sanitary condition af the barracks, huts, and quarters at Nicosia is reported to be satisfactory. It is said that the air is more dry and bracing than in other parts of the plains; the temperature is higher during the hot weather as a rule, and lower in the winter than in the towns on the sea coast.

At Troodos the sanitary arrangements were carried out in a similar manner to the previous year, and proved highly satisfactory. At the hospital a kitchen was built and a cooking stove provided. A large wooden hut was partitioned off, the smaller portion being fitted up as a surgery, and the larger as a steward's store; this was done to prevent the loss and deterioration of stores which had occurred in former years when they were placed in tents. Wooden floors were

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Cyprus.

provided for the tents used by patients in place of the tarpaulins previously used.

During former years the troops suffered a good deal from fever on their return from Troodos to Polimedia, and a camp was therefore pitched at Peripedia, intermediate between the two, as an experiment, with a view of observing if the men stationed in it would be more healthy than those at Polimedia, but as in the year under report there was little or no sickness at either place comparison could not well be made.

At Limassol, after the return of the troops from Troodos, the water supply was scanty on account of the very dry season, and to remedy this it was necessary to cart water from Polimedia. An ablution and bathroom fitted with basins and baths, and with water laid on, has been built in to the end of each barrack.

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IV.—ON THE HEALTH OF THE TROOPS SERVING IN THE DOMINION OF CANADA.

Sickness and Mortality.

Canada.

The only station in this Command occupied by Imperial troops was Halifax, and the average strength of the garrison was 1,282, which consisted of three batteries Royal Artillery, one company and a torpedo section Royal Engineers, the 2nd Battalion York and Lancaster Regiment, detachments of Departmental Corps and Garrison Staff.

The following changes took place during the year:—The 3rd Battery, 1st Brigade, London Division, and the 3rd and 4th Batteries, 1st Brigade, Cinque Ports Division, Royal Artillery, arrived from England in October in relief of the 5th Battery, 1st Brigade, Cinque Ports Division, and 5th and 6th Batteries, Northern Division, Royal Artillery. The 18th Company, Royal Engineers, also arrived from Gibraltar in relief of the 20th Company, Royal Engineers. Drafts for the York and Lancaster Regiment arrived in May and October.

The principal health statistics of the troops are given in the following table, and those of particular corps will be found in Abstract XXXIX.:—

1887. Average Strength.	Admissions.	Deaths			Invalids		Average daily Sick.	Ratio per 1,000 of Strength.				
		In the Command.	Of Invalids.	Total.	Sent Home.	Finally Discharged.		Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged.	Constantly Sick.
1,282	801	6	1	7	14	11	45·59	624·8	5·46	10·92	8·58	35·56

Compared with corresponding ratios in the preceding year there is an increase of 39·5 per 1,000 in the ratio of admission, one of 3·12 in that of mortality, and one of 5·34 in that of constantly sick; but compared with similar average ratios for the previous 10 years there is a decrease of 102·7 in admission ratio, and one of 2·89 in the ratio of constant inefficiency, with a fractional increase in the mortality ratio. The average sick time to each soldier was 12·98 days, and the average duration of each case of sickness 20·77 days, being longer in each instance than the corresponding period in the previous year by nearly two days; but when compared with similar average periods for the preceding 10 years the former is shorter by about a day, and the latter longer by a day and a half.

With regard to particular corps, it is observed that the annual admission ratios of the three batteries of artillery which arrived from England during the year were the highest; but these batteries were not three months in the Command. The admission ratio for the infantry regiment, 682·4 per 1,000, compares favourably with the annual admission rate in the previous year, the mortality ratio, 6·20, shows only a slight decline, and the constantly sick rate, 41·80, has somewhat advanced. The health of the Royal Engineers was good, the admission and constantly sick rates being only 377·2 and 14·74, while there was no mortality.

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Canada.

Taking sickness and mortality among men at different ages and at different periods of service in the Command, it is observed that among men under 20 years of age the admission ratio was 438·5 per 1,000, between 20 and 25 years of age it was 883·5, falling in the next quinquennium to 441·1, and in that succeeding to 372·6. The mortality ratios were small, but most deaths occurred in men between 20 and 25 years of age. Among men in their first year of service in the Command the admission ratio equalled 713·2 per 1,000, in the second year 514·3, and in the third 535·3. Five out of the six deaths in the country occurred in men in their first year of service in the Command.

The admissions and deaths in the different classes and groups of diseases are shown in Abstract V.

General Diseases.—*Diseases dependent on Morbid Poisons.—Eruptive fevers* were represented by five cases of measles of a mild type, and *continued fevers* by a single case of *enteric fever*. The latter was admitted from the musketry camp at McNab's island. The subject of it, an officer's servant, had only been a few days there, and it is probable he contracted the disease in Halifax. In the previous year there was no enteric fever, and there were only five cases in the preceding five years.

Under the head of *malarial fevers* one case of ague is returned, and under that of *septic diseases* were seven cases of erysipelas, all of which did well.

Primary syphilis caused 35 admissions, equal to a ratio of 27·3 per 1,000; if to this the admissions for simple venereal ulcer, 18, be added, the ratio for primary venereal sores is 41·3, which is higher than that in the preceding year by 4·7, but lower than the quinquennial average ratio by 18·6. *Secondary syphilis*, with 46 admissions, gives a ratio of 35·9, which is above the last year's ratio by 1·6, but below the average by 6·7. *Gonorrhœa* was the cause of 101 admissions, or 78·8 per 1,000, which differs only fractionally from the rate in the previous year, but is below the average by 19·2. Including all forms of venereal disease the total admission ratio was equal to 156·0 per 1,000, which is above the ratio in the preceding year by 5·6, but below the average rate by 44·5. The ratio of constant inefficiency from venereal affections was 10·18 per 1,000, which is below the average rate by 2·47, though fractionally above the corresponding ratio in 1886.

Rheumatism was the cause of 72 admissions, eight cases being rheumatic fever. The admission ratio, 56·2 per 1,000, is higher than that of the previous year by 20·4, and also above the average rate. The increase in prevalence of rheumatic affections is said to be the result of exceptional climatic conditions.

Local Diseases.—*Diseases of the Nervous System* caused an admission ratio of 15·6 per 1,000, dependent on 20 admissions, which is above the ratio in the previous year by 4·7, and is also above the average. Of the admissions nine were due to epilepsy, three to vertigo, and three to neuralgia. One death occurred from abscess of the brain. *Diseases of organs of special senses* were at the rate of 15·6 per 1,000, a decrease of 7·0, and below the average. Half the admissions were for ophthalmic, and half for aural and nasal affections. *Diseases of the circulatory system* were more frequent than usual, and the rate of admissions, 18·7, was greater by 5·5 than in the previous year. Fourteen of the admissions were palpitation cases, and there were five cases of valve disease of the heart, one of syncope, and four of affections of the veins. One death occurred from fatty degeneration of the heart. *Diseases of the respiratory system* also show a considerable increase in admission rate over the previous year, 57·7 to 36·6, but still were somewhat below the average rate. Out of 74 admissions 51 were bronchial affections; there were also 17 cases of pneumonia, one of them fatal. *Diseases of the digestive system* caused 123 admissions, the ratio, 95·9 per 1,000, being in excess of that in the preceding year by 8·6, though below the average rate. More than half the admissions were caused by follicular tonsillitis; dyspepsia was also a frequent cause of admission. There were two cases of cirrhosis of the liver, one of which was fatal.

Of the remaining orders of local diseases those which show the most sickness were *affections of the generative system*, *of the connective tissue*, and *of the cutaneous system*. The ratio of admission of the first named, 36·7, shows a

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considerable increase, but there is very little difference in the next, and in skin diseases there is a decrease. There were two deaths recorded under the head of *urinary affections*, both from Bright's disease; one occurred in an invalid.

Injuries.—111 admissions are recorded, being at the rate of 86·5 per 1,000, rather below the average in frequency. For general injuries there were two admissions, a case of heat apoplexy, and one of starvation. The latter occurred to a man who deserted on the 21st June, and concealed himself in the woods in the vicinity of Halifax. He was accidentally found and brought to hospital on the 7th August in almost the last stage of exhaustion from starvation and exposure, but he ultimately recovered. One death from drowning is recorded. Of 109 admissions for local injuries all but seven were cases of contusion, wound, or sprain. None of the admissions require special mention.

Invaliding.—16 men were invalided during the year, of whom two were discharged in the country and the remainder sent home. The ratio of the latter was 10·92 per 1,000, which is lower by 7·01 than the corresponding rate in the previous year, and than the decennial average rate by 13·65. Most of the invaliding took place in the infantry regiment, and the ratio per 1,000 was 13·65; in the artillery the ratio was 6·33. The ratio of invaliding among men between 20 and 25 years of age was 17·92 per 1,000, and in the next quinquennium 9·24, increasing again after that time. With regard to service in the Command, the invaliding ratio was 13·83 per 1,000 in the first year, 11·43 in the second, and 10·10 in the third year. The causes of invaliding were cardiac affections 4 cases, nervous diseases 3, pneumonic phthisis 2, and constitutional syphilis, rheumatism, deafness, synovitis, and cirrhosis of the liver one case respectively.

The number of men finally discharged the service as medically unfit was 11, being in the ratio of 8·58 per 1,000, as compared with 15·59 in the previous year, and with a decennial average rate of 18·88. The disabilities necessitating discharge were heart disease 4 cases, nervous affections 2 cases, and constitutional syphilis, rheumatism, deafness, varicose veins, and pneumonic phthisis one case respectively.

Officers.—The average strength of officers was 61, and there were 20 attacks of illness, being in the ratio of 327·9 per 1,000, rather above the corresponding ratio in the previous year. Injuries, bronchitis, and sore throat were the chief causes of illness. There was no mortality or invaliding.

Women.—The average strength was 90; there were 35 attacks of sickness and one death, being in the ratios of 388·9 and 11·11 per 1,000 respectively. The ratio of prevalence of sickness differs but little from that in the previous year. The principal causes of illness were respiratory affections, debility, and diseases of the generative system. The death was due to apoplexy.

Children.—The average strength was 183; among them were 106 attacks of illness and 5 deaths. The ratio of prevalence of sickness was 579·2 per 1,000, and the mortality rate 27·32, the former being higher, but the latter lower than the corresponding rate in the preceding year. The chief causes of sickness were respiratory diseases 38 cases, follicular tonsillitis 16, debility 12, eruptive fevers 9 cases (including 3 respectively of cow-pox, measles, and scarlet fever), and diphtheria 5 cases. The deaths were due to bronchitis in two cases, and to scrofula, diphtheria, and erysipelas in one case respectively.

Sanitary Conditions.—The Principal Medical Officer, Deputy Surgeon-General E. G. McDowell, C.B., reports that the health of the troops was good throughout the year, and it was not injuriously affected by the nature of their duties.

The general sanitary condition of the barracks was satisfactory, and any minor sanitary defects were remedied, when possible, on representation. The water supply (the town supply from the adjacent lakes) is ample and good. The rations were good, and were carefully attended to; due attention was also paid to variety in cooking. The clothing was suitable to the climate and seasons of the year.

With regard to climate, it is stated that "the summer was warm, dry, and "rather prolonged, but the heat was not excessive. During the winter "months the climate was of a variable nature, distinguished by sudden

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Canada.

" vicissitudes of temperature, causing an increased admission rate for chest " affections and for rheumatism. The average temperature for the 12 months " was 42° Fah."

Among the sanitary services carried out during the year may be mentioned improvements in drainage in officers' quarters, Wellington Barracks; in the Royal Artillery Park Barracks; and in the South Barracks. In the Citadel all the three tanks were cleaned; the north tank whitewashed, and adjacent drains altered to prevent contamination. At Ives Point Battery the latrines were converted to the dry earth system, and the drains to the south of the battery relaid and improved.

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V.—ON THE HEALTH OF THE TROOPS SERVING IN BERMUDA.

Sickness and Mortality.

Bermuda.

The average strength of warrant officers, non-commissioned officers and men serving in Bermuda was 1,183, and the force was composed as follows:—Two batteries of Royal Artillery; the 6th company, Royal Engineers, until October, when it left for England on relief by the 1st company from Gibraltar, also a a section of the 27th company; the 2nd Battalion West Riding Regiment; detachments, Departmental Corps; and Garrison Staff.

In the following table the principal health statistics of the troops during the year are given, and in Abstract XXXIX. will be found those of particular corps:—

1887. Average Strength.	Admissions.	Deaths			Invalids		Average daily Sick.	Ratio per 1,000 of Strength.				
		In the Command.	Of Invalids.	Total.	Sent Home.	Finally Discharged.		Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged.	Constantly Sick.
1,183	957	11	4	15	35	27	49·84	808·9	12·68	29·59	22·82	42·13

Compared with the return for the previous year there is an increase of 172·4 per 1,000 in the admission ratio, one of ·46 in the death rate, and one of 7·66 in the ratio of constantly sick; and in comparison with average ratios for the preceding 10 years there is an increase of 177·5 in rate of admission, one of 4·78 in that of death, and one of 8·09 in that of constant inefficiency through sickness.

The average sick time to each soldier was 15·38 days, which is longer than the corresponding period in the preceding year by 2·80 days, and than the decennial average period by 2·96 days. The average duration of each case of sickness, 19·01 days, is fractionally shorter in both these comparisons.

The highest admission and constantly sick rates in any corps were 865·0 and 45·99 per 1,000 respectively in the 2nd Battalion, West Riding Regiment, the next being 844·0 and 40·37 in the 2nd Battery, 1st Brigade, North Irish Division, Royal Artillery, followed by the Royal Engineers with annual ratios of 824·7 and 41·24, then the 3rd Battery, 1st Brigade, Southern Division, Royal Artillery, with 746·3 and 35·30 per 1,000 respectively. The sick ratios in the staff and departments were low. The mortality ratios varied from 22·38 per 1,000 in the Southern Division Battery of Artillery to 9·17 in the West Riding Regiment, and the other artillery battery.

With regard to sickness according to age it is found that the admission ratio among men under 20 years of age was 854·4 per 1,000, among men between 20 and 25 years of age it was 900·1, among men between 25 and 30 years 653·3, and over that age 439·2. Mortality was highest between 20 and 25 years of age, and lowest among men under 20 years of age, 11·92 and 4·85 respectively. With regard to sickness according to length of service in the Command the highest admission rate, 956·1 per 1,000, is observed among men under one year's service in the Command, among men in their second year of service it was 511·9, and among men in their third year 483·5. The mortality ratio was 8·77 per 1,000 in the first, 10·23 in the second, and 10·99 in men over two years' service.

The admissions and deaths, &c. in the various groups and orders of diseases are recorded in Abstract VI.

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Bermuda.

GENERAL DISEASES.—*Diseases dependent on Morbid Poisons.*—In the first sub-group of these diseases were 101 admissions for continued fevers and one admission for dysentery. Of the former 50 were cases of *enteric fever*, and 51 of *simple continued fever*. Enteric fever cases were considerably more numerous than in the previous year, when 28 cases occurred, and the admission ratio, 42·2 per 1,000, is nearly twice as great. The deaths were 8 in number, or 6·76 per 1,000 as compared with 4 or 3·26 in the preceding year. The per-centage of mortality to attack, 16, is slightly higher than in 1886. Compared with the average ratios for the preceding five years, 21·3 and 4·12 per 1,000 respectively, the ratios for the present year show a marked increase. Of the cases 41 occurred at Prospect, among which there were 7 deaths; 7, one case fatal, occurred at St. George's, and 2 at Watford. With regard to the cases at Prospect, the medical officer in charge remarks that "enteric fever has "been prevalent; on investigating the cause it appeared that the cases could "in a large measure be traced to the drinking of water from the 'officers' "mess tank,' which had a reputation among the men for purity. This tank "had not been cleaned out for a long time, and its surroundings are bad. "It has a stable within a few yards and on a higher level, and the officers' "latrine is also within a few yards. Percolation into it of drainage from "these two sources, with a porous coral soil, and perhaps a flaw in the cement "of the tank, may possibly have taken place. The water was analysed "and found to be of a suspicious nature, unfit to be used for drinking "purposes (without at least previous boiling) on account of the large amount "of oxydisable matter in it. The tank was closed at the end of October, after "which date it is worthy of note gastro intestinal affections almost ceased, "and there has been an absence of enteric fever." Of the seven cases of enteric fever that occurred at St. George's at the latter part of the year the medical officer states that five were of a very severe type, and one proved fatal. As these five cases occurred in rapid succession, and as there were also several cases of diarrhœa at the time, suspicions were aroused that some sanitary defect existed in barracks to account for it, and in making a careful sanitary inspection, a rain-water tank in the artillery barracks, from which all the cases came, appeared to be in a bad state of repair, and possibly allowed leakage into it. The tank was at once locked up and the diseases ceased to appear. The water was analysed and reported unfit for use; measures were being taken to restore and repair the tank, when further analysis was to be made before use would be permitted. Of the two cases at Watford, it is said that both could be traced to infection in other parts of the Command.

The ratio of admission for *simple continued fever* was 43·1 per 1,000, which is considerably above the average rate and more than double that of the previous year. *Dysentery*, which caused six admissions and one death in the foregoing year, was represented by a single case, as were also *malarial fevers*.

In the sub-group of venereal diseases 18 admissions are recorded for *primary syphilis*, or 15·2 per 1,000, as compared with 22·8 in the preceding year, and 1·11 men were constantly sick, or ·94 as compared with 2·95. Adding to these ratios the sickness caused by simple venereal ulcers, the admission ratio for primary venereal sores was 21·1, and the constantly sick rate 1·34 per 1,000, which are lower than the corresponding ratios in the preceding year by 7·4 and 1·84 respectively, and than quinquennial average ratios by 22·5 and 2·15. *Secondary syphilis* caused 31 admissions, or 26·2 per 1,000, as compared with 22·8 in the previous year, and 21·3 the average rate. The number constantly sick, 1·97, gave a ratio of 1·67 per 1,000, which is lower by ·76 than that in the previous year, and is about the average rate. *Gonorrhœa* was also the cause of 31 admissions, or 26·2 per 1,000, which is about the average rate, but below the rate in 1886 by 12·1. The ratio constantly sick, 1·50 per 1,000, is also equal to the average, but below the rate in the preceding year. Including all forms of venereal disease the total admission rate was 73·5, and the total rate of constant inefficiency 4·51 per 1,000, which are lower than the previous year's rates by 16·1 and 3·74, and than the corresponding average rates by 17·5 and 2·17 respectively. Under the head of *alcoholism* 13 admissions are recorded, the ratio being 11·0, more than twice that of the previous years; 6 of the cases occurred at Prospect and 7 at St. George's.

The ratio of admission for *debility* was 13·5 per 1,000, it shows a decline of 6·0 from the previous year, and is below the average.

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Rheumatism caused 31 admissions, equal to 26·2 per 1,000, which is below the ratio in the previous year by 3·1, and is below the average. One case only was rheumatic fever, it did well.

Four admissions are recorded for *tubercular disease* of the lungs; in the previous year there were three cases. Two invalids on this account died after leaving the Command. The medical officer in charge at St. George's, speaking of the climate of these islands, expresses his opinion that developed chest affections are not benefited by it, and cases of tubercle of the lung do not do well.

Local Diseases.—*Diseases of the Nervous System* caused 14 admissions, including one for mental disease; most of the admissions were due to neuralgia. The ratio of prevalence, 11·9 per 1,000, exceeds that of the preceding year by 6·2, and is above the average. *Diseases of the organs of special senses* were the cause of 48 admissions, 32, or 27·0 per 1,000, being for ophthalmic affections, and 16, or 13·5 per 1,000, for aural and nasal affections; both these ratios are higher than those recorded in the preceding year. *Diseases of the circulatory system* caused 36 admissions, equal to 30·4 per 1,000 as compared with 11·4 in the previous year; it is also considerably above the average rate. The cases comprised 20 of valvular disease of the heart, 13 of palpitation, and 3 of varicose veins. One death occurred in an invalid, after having left the Command, from valve disease. *Diseases of the respiratory system* were the cause of 47 admissions, the ratio being 39·7 per 1,000, above the last year's rate by 7·9, as well as above the average. Nearly three fourths of the cases were bronchial affections, and among the remainder were two cases of pneumonia, pleurisy, and laryngitis respectively. One death occurred from pneumonic phthisis. The admissions for *diseases of the digestive system* were 179 in number, being in the ratio of 151·3 per 1,000, which exceeds the ratio in the previous year by 9·5, and is above the average a good deal. The principal causes of admission were dyspepsia 67 cases, diarrhœa 48, and affections of the mouth and throat 31 cases. There were 9 admissions for hepatic affections, and one death from abscess of the liver occurred in an invalid who had left the Command. *Diseases of the glandular system* caused an admission rate of 13·5 per 1,000, and *diseases of the generative system* one of 19·4, both of which show a decline as compared with the corresponding ratios for the preceding year; and there were no admissions for *urinary* diseases. The remaining orders of local diseases all show an increase in this comparison, particularly affections of the *connective tissue* 34·7, and *skin* diseases 110·7 per 1,000, each being more than double the corresponding rate in the preceding year. It is said, however, that cutaneous affections though numerous were very amenable to treatment, and require no remarks.

Under the head of *poisons* is returned one admission for accidental poisoning by eating castor oil seeds; the man remained six days in hospital.

Injuries caused 142 admissions, equal to a ratio of 120·1 per 1,000, which is higher than the ratio in the previous year, and is above the average. There was one admission for multiple injury through a gun carriage falling on a man and breaking both bones of the left leg and three ribs, but he made a good recovery. One death occurred from accidental drowning whilst bathing. The admissions for local injury were mostly of an ordinary character, the great majority contusions, wounds, or sprains. There was one death from wound, the man having been stabbed in the back by a native.

Invaliding.—The number of men invalided home was 35, equal to a ratio of 29·59 per 1,000, which is above the rate of the previous year by 13·30, and the decennial average rate by 13·48. The invaliding ratio of corps was highest in the Royal Engineers, 41·24 per 1,000, next in the infantry regiment 28·83, and then in the artillery 28·81. With regard to age, invaliding was greatest among men between 20 and 25 years of age, 35·77 per 1,000, and least under 20 years, 14·56; and with regard to service in the Command, there was most invaliding in the second year of service, 51·19 per 1,000, and least in the first year, 22·56. The principal causes of invaliding were heart disease 10 cases, tubercle of lung 3, respiratory affections 4, diseases of organs of locomotion 3, of the eye 3, and hepatic affections 2 cases. The number of men discharged the service as medically unfit for further service was 27, or 22·82 per 1,000, which is above the corresponding ratio in the previous year by 6·53, and above the average ratio for 10 years, by 12·49. The principal disabilities neces-

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Bermuda.

sitating discharge were cardiac affections, tubercular diseases, ophthalmic affections, and diseases of the organs of locomotion.

Officers.—The average strength was 57, and there were 24 admissions into hospital and one death. The ratios per 1,000 of strength were, therefore, 421·0 and 17·54. The ratio of prevalence is higher than in the previous year, and there were no deaths in that year. The cases of sickness do not require special mention. The death was the result of accident, an officer while bathing attempted some gymnastic feat and dislocated his spine (with fracture). He died 11 hours after the accident.

Women.—The average strength was 87, and there were 28 attacks of illness, but no death. The ratio of prevalence was 321·8 per 1,000, considerably lower than in the preceding year. The admissions were of a varied character, and none call for special mention.

Children.—The average strength is returned as 153; the number of attacks of illness was 31, and there were 4 deaths, being in the ratios of 202·6 and 26·14 per 1,000 respectively, which compare favourably with the corresponding ratios in the previous year. Among the cases treated were five of enteric fever, one of which proved fatal, five of simple continued fever, and nine of diarrhœa. The remaining deaths are recorded under hepatitis, enteritis, and teething, one case respectively.

Sanitary Conditions.—The Principal Medical Officer, Deputy Surgeon General F. Wade, reports that "the general sanitary condition of the quarters "occupied by the troops, and also of the various stations, has been very good. "This is borne out by the reports of medical officers, and by the quarterly "sanitary board composed of officers of different corps specially detailed for "this purpose. The outbreak of enteric fever assumed almost an epidemic "form, owing, it is believed, to the use of impure water. Samples of water "are being constantly submitted for analysis, and where the least suspicion "exists the tanks are immediately emptied, cleaned, and repaired."

At Prospect, it is said, there have been no changes of importance in the ventilation or accommodation of the huts. The means of ablution were somewhat increased by utilising a room which had been disused for some time. The drainage of the camp which was in course of construction last year has been completed and answers very well, and the drains are flushed daily with large quantities of water.

At Hamilton the barracks were on the whole satisfactory as regards cubic space, ventilation, lighting, and general healthiness, with one exception, in which the ventilation is imperfect, owing to situation, but this defect will probably be remedied by some alteration about to be made as to the opening of the windows.

At St. George's there are two barracks, the Victoria or infantry barracks, and the old Royal barracks, inhabited by the artillery, the former have large and well ventilated rooms, and leave nothing to be desired, but the latter compare unfavourably with them, being dark and not so well ventilated, and with rooms less lofty, they are, however, kept in good sanitary condition. A hutment in which the engineers are quartered meets all sanitary and other requirements.

The barracks at Ireland island are casemates, a stone two storied building overlooking the naval dockyard, and the barracks at Boaz are two storied buildings, of which the lower one only is occupied. They are ventilated by opposite windows and gratings, and the accommodation is sufficient. The married quarters are old and dilapidated, but it is said that they are soon to be put in thorough repair.

A cemetery has been completed at Watford, it is said to be badly situated, too near to the station hospital, and on elevated ground. This has been brought to the notice of the authorities.

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VI.—ON THE HEALTH OF THE TROOPS SERVING IN THE WEST INDIES.

Sickness and Mortality.

I.—White Troops.

West Indies Command.

The average strength of warrant officers, non-commissioned officers and men was 1,121, and the force was composed as follows:—The 6th Battery, 1st Brigade, London Division, and the 3rd Battery, 1st Brigade, Welsh Division, Royal Artillery, the 1st Battalion East Yorkshire Regiment, detachments Royal Engineers and Departmental Corps, Garrison Staff, and white non-commissioned officers of West India Regiments.

The white troops were quartered principally at Barbados, Jamaica, and Trinidad, a few men only being stationed in Honduras, Demerara, and the Bahamas.

The following table gives the chief statistics of sickness and mortality among the troops during the year:—

1887. Average Strength.	Admissions.	Deaths			Invalids		Average daily Sick.	Ratio per 1,000 of Strength.				
		In the Command.	Of Invalids.	Total.	Sent Home.	Finally Discharged.		Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged.	Constantly Sick.
1,121	1,252	13	—	13	17	13	59·17	1116·9	11·60	15·17	11·60	52·78

Compared with corresponding ratios for the preceding year a decrease of 51·7 per 1,000 is observed in the admission ratio, one of 3·10 in the mortality ratio, and one of 2·31 in that of constantly sick; but compared with average similar ratios for the preceding 10 years an increase of 178·2 per 1,000 has occurred in the rate of admission, and one of 6·63 in that of constant inefficiency through sickness; the death rate, however, has declined by 5·08.

The average sick time to each soldier was 19·26 days, and the average duration of each case of sickness 17·25 days, the former being nearly a day shorter than the corresponding period in the previous year, but nearly two and a half days longer than the similar average decennial period, while the latter differs only fractionally in either of these comparisons.

The more important of the statistics of the sickness and mortality of different corps are shown in Abstract XXXIX.

The highest annual ratio of admission occurred in the 6th Battery, 1st Brigade, London Division, Royal Artillery, 1429·9 per 1,000, followed by 1170·7 in the 3rd Battery, 1st Brigade, Welsh Division, and 1113·4 in the East Yorkshire Regiment. Of the deaths, 3 occurred in the Welsh Division Battery, 1, accidental, in the London Division Battery, 7 in the Yorkshire Regiment, and 2 among the white non-commissioned officers of West India Regiments. The constantly sick rates of the artillery batteries were 62·61 per 1,000 that of the London Division, and 70·61 that of the Welsh Division; the ratio in the infantry regiment was 52·48 per 1,000.

With regard to the influence of age on sickness and mortality, it is observed that the highest admission rate was among men between 20 and 25 years, 1276·2 per 1,000, this scarcely differs from the corresponding ratio in the

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West Indies Command.

previous year, under 20 years of age the ratio was 898·9, a good deal lower than in the preceding year, and over 25 years the rate fell to 867·6. Mortality was highest between 20 and 25 years, 13·29 per 1,000, followed by 11·27 over 25 years; under 20 years there was no mortality. Taking the admissions according to the length of service in the Command, it is found that the highest ratio was 1172·2 per 1,000 among men between 1 and 2 years' service, the ratio among men under one year's service, 1116·9, being only a little below; among those over 2 years' service, however, the ratio was low, 714·3; compared with the previous year the ratios of men in their second and third years of service were considerably lower, but the ratio in the first year of service was somewhat higher. The mortality rate was highest in the third year of service, 28·57 per 1,000, next in the second year, 16·89, and lowest in the first year, 9·00.

The admissions, deaths, &c. in the different groups and orders of diseases are given in Abstract VII.

GENERAL DISEASES.—*Diseases dependent on Morbid Poisons.*—Sub-group 1.—*Eruptive fevers* are represented by 40 admissions for dengue, being in the ratio of 35·7 per 1,000; these all occurred at Newcastle, Jamaica, in the months of November and December. It is stated that the epidemic was of a mild type, and that the disease could not be traced to any specific cause. *Enteric fever* caused 14 admissions and 7 deaths, as compared with one fatal case in the preceding year, and the admissions for the previous five years were only 14 in all. The admission and mortality rates for the year under report were 12·5 and 6·25 per 1,000 respectively. Of the cases, 11 occurred in Jamaica, one, fatal, occurred at Up Park Camp, and 10, of which 5 were fatal, at Newcastle. With regard to the latter, it is stated by the medical officer in charge that one probable cause of the disease was that men frequented two rum shops half way down the hill, where it was ascertained that some cases of enteric fever had existed amongst the natives; and another probable cause was the contamination of the water in the mess tank. The remaining 3 cases, one of which was fatal, occurred in Barbados. The admissions for *other continued fevers* numbered 123, or 109·7 per 1,000, which is less than half the rate in preceding year, and considerably below the quinquennial average rate. These fevers were most prevalent in Jamaica, the ratio of admission being 133·2 per 1,000 of strength, while in Trinidad and Barbados the ratios were 99·4 and 94·6 respectively. *Yellow fever*, which occurred in the two preceding years, 5 cases and 2 cases respectively, was entirely absent among the non-commissioned officers and men in the year under report. *Dysentery*, which in the previous year caused 16 admissions and 2 deaths, shows only 2 admissions, one in Jamaica and one in Barbados.

Malarial fevers.—There were in all 37 admissions and 2 deaths, equal to ratios of 33·0 and 1·79 per 1,000 respectively. The admission ratio is lower than that of the previous year by 7·3, but is still above the average rate; 13 of the cases were ague and 24 were remittent fever. Of the latter, Jamaica furnished 20 cases and Honduras 4. Both the deaths were due to remittent fever, and both occurred at Jamaica.

The sub-group of venereal diseases shows 29 admissions for *primary syphilis*, equal to a ratio of 25·9 per 1,000, which is but little more than half the corresponding ratio for the preceding year. But adding to these ratios those for simple venereal ulcer, it is found that the ratio for primary venereal sores amounted to 91·0 per 1,000 as compared 89·2 in the previous year, and 80·5, the average rate of the preceding five years. *Secondary syphilis* caused 19 admissions, equal to 16·9 per 1,000, which is lower than the corresponding rate in the previous year by 7·6 and below the average rate by 14·2. One death is recorded from secondary syphilis. *Gonorrhœa* caused 166 admissions, or 148·1 per 1,000, which is an increase of 25·6 on the previous year's rate, and is above the average rate by 51·0. Including all forms of venereal disease, the ratio of admission amounted to 256·0 per 1,000, being above the ratio of the preceding year by 19·8, and above the quinquennial average by 47·3. The ratio of constant inefficiency on account of these diseases was 17·00 per 1,000, being fractionally higher than in 1886, and above the average rate by 2·05.

Alcoholism was the cause of 15 admissions, or 13·4 per 1,000, as compared with 11·8 in the foregoing year. All the cases occurred at Barbados, where it

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is said that every facility exists for the production of this condition, rum being bad, cheap, and obtainable everywhere. *West Indies Command.*

Rheumatism was the cause of 43 admissions, being at the rate of 38·3 per 1,000, which is above the previous year's rate by 12·8, and is also above the average rate. Of the cases, two were rheumatic fever. There were 4 admissions for *tubercular disease*, all cases of lung affection.

LOCAL DISEASES.—*Diseases of the Nervous System* caused 14 admissions, or 12·5 per 1,000, slightly below the last year's rate, and below the average. Several of the cases were neuralgia, and among the remainder were three of paralytic affections and two of epilepsy. *Diseases of the organs of special senses* were the cause of an admission ratio of 57·0 per 1,000, of which 17·8 was due to ophthalmic affections, and the remainder to aural affections, both of which were more frequent than in the previous year, and than usual. *Diseases of the circulatory system*, on the other hand, were less frequent, the admission ratio being only 8·0, and most of the cases were palpitation. *Respiratory affections* gave an admission ratio of 42·8, almost identical with that of the preceding year, but considerably above the average rate. Three fourths of the cases were bronchial affections, and among the remainder were one of pneumonia and three of pleurisy. There were 112 admissions for *diseases of the digestive system*, equal to a ratio of 99·9 per 1,000, which differs only fractionally from the ratio in the preceding year. To compare the prevalence of digestive disorders with the average of former years it is necessary to take dysentery into account, and it is then found that a marked decline has occurred; 58, or nearly half of the admissions, were due to affections of the mouth and throat, 20 were due to diarrhœa, 11 to dyspepsia, and among the remainder were 6 cases of hepatic disease, and there was one death from hepatitis. The admission rate for *diseases of the lymphatic and glandular system*, 33·0, shows a decline from the previous year, though rather above the average. *Diseases of the generative system* gave a ratio of 92·8, *diseases of the connective tissue*, one of 32·1, and *cutaneous affections*, one of 93·7 per 1,000, all of which are above the corresponding ratios in the preceding year.

Injuries caused 195 admissions, equal to a ratio of 174·0 per 1,000, which is in excess of the average rate, and the rate in the foregoing year. Among the cases were one of heat stroke, four of fracture, and five of dislocation, the remainder being chiefly contusions, wounds, or sprains. One death took place from fracture of the base of the skull, said to have been the result of an accident.

Invaliding.—The number of men invalided home was 17, being in the ratio of 15·17 per 1,000, which is higher than the corresponding ratio in the previous year by 1·44, but lower than the average ratio for the preceding decennium by 12·39. Of the men invalided, 13 were from the European infantry regiment, 2 from the artillery, and the other 2 were non-commissioned officers of West India Regiments. With regard to the influence of age, 10 men, or 14·77 per 1,000, were between 20 and 25 years of age, and 7, or 10·72 per 1,000, were over that age. As to length of service in the Command, 11 men, or 14·14 per 1,000, were under one year, 5, or 16·89 per 1,000, in the second year of service, and one, or 28·57 per 1,000, in the third year. Among the causes of invaliding were debility, tubercle, nervous affection, and diseases of the circulatory system, 2 cases each; the remainder being single cases of various diseases.

The number of men finally discharged by invaliding was 13, equal to a ratio of 11·60 per 1,000, which is below the decennial average rate by 3·29, and fractionally below the previous year's rate. The chief disabilities necessitating discharge were rheumatism, tubercular diseases, and cardiac affections.

Officers.—The average strength was 112, and the number of attacks of illness 65, and there were 2 deaths, and 6 officers were invalided. The ratio of sickness was, therefore, 580·3, that of mortality 17·86, and that of invaliding 53·57 per 1,000. Compared with corresponding rates in the preceding year there is a decrease of 351·3 in the first named, but an increase is observed in the other two of 9·31 and 19·37 respectively. The principal causes of sickness were fevers, 13 cases of a malarial character, 5 of simple continued fever, and 1 of dengue, enteric fever, and yellow fever respectively. The last two cases proved fatal; the former occurred at Jamaica and the latter at Honduras

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West Indies Command.

Of the remaining cases treated, disorders of the digestive system and rheumatic affections were the most frequent. The causes of invaliding were ague, locomotor ataxy, hæmoptysis, pleurisy, debility, and fracture, one case respectively.

Women.—The average strength of women is returned as 70, and the number of cases of illness as 26, and there was 1 death. The ratio of sickness, 371·4 per 1,000, is higher than the previous year by 97·6. The death rate was 14·28. The chief causes of sickness were fevers (including one case of enteric fever), debility, and uterine affections. The death was due to tubercular disease of the lungs.

Children.—The average strength was 112, the number of cases of illness 24, and there were 3 deaths. The sick rate was, therefore, 214·3 per 1,000, and the death rate 26·78, the former showing an increase of 42·7 and the latter a decrease of 2·80 as compared with the corresponding ratios for the previous year. Among the cases treated were 3 of whooping cough, 5 of bronchitis, 3 of convulsions, all of which were fatal, 2 of simple continued fever, and 2 of diarrhœa.

Sanitary Conditions.—The Principal Medical Officer, Deputy Surgeon-General Tippetts, reports that the health of the troops throughout the Command was on the whole satisfactory. The general sanitary condition of the different barracks and hospitals was good, the accommodation provided was sufficient, ventilation was satisfactory, and every attention given to cleanliness. The drainage was generally in good order, and some minor repairs which became necessary were undertaken. The water supply is reported to have been generally good and sufficient, and the means of ablution satisfactory. With regard to rations, it is reported that the supplies were of good quality, and the means of cooking ample, and every facility afforded for varying the diet. Preserved meat and mutton were issued once a week at Barbados and Trinidad, and were good and wholesome. The clothing was suitable to the climate, and the duties and employments of the troops were conducive to their health. No gymnasium exists, but quoits, cricket, and other outdoor amusements were supplied for the men, as well as the usual indoor means of recreation. Among the principal sanitary improvements which were carried out during the year may be mentioned the following:—At Barbados extension of verandah on windward side of commanding officers' quarters, provision of hurricane shutters at the Retreat, provision of upper story to quarters of Principal Medical Officer, and ventilation of basement of commissariat officers' quarters. At Demerara improvements were effected to the officers' bath, and at Newcastle, Jamaica, additional latrines were about to be provided.

II.—Black Troops.

The average strength of non-commissioned officers and men was 1,205, exclusive of white sergeants. The black troops serving in the Command consisted of the headquarters 2nd West India Regiment at Jamaica, with detachments at Nassau and Honduras, detachments of 1st West India Regiment at Barbados and Demerara, and the corps of military labourers at Barbados and Trinidad.

The principal statistics of sickness and mortality among the foregoing are shown in the subjoined table:—

1887. Average Strength.	Admissions.	Deaths			Invalids		Average daily Sick.	Ratio per 1,000 of Strength.				
		In the Command.	Of Invalids.	Total.	Sent Home.	Finally Discharged.		Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged.	Average Constantly Sick.
1,205	1,606	14	—	14	—	80	89·51	1332·8	11·62	—	66·39	74·29

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Compared with the corresponding ratios in the preceding year an increase of 40·0 per 1,000 has occurred in the admission rate, and one of 17·04 in the constantly sick rate, but the death rate has declined by 8·02. Compared with similar average rates for the previous 10 years, there is an increase amounting to 247·1 per 1,000 in the admission ratio, and of 15·71 in the ratio of constant inefficiency through sickness, but there is a decline of 3·89 in the mortality rate. *West Indies Command.*

The average sick time to each soldier was 27·10 days, and the average duration of each case of sickness 20·34 days, the former being longer than in the previous year by over 6 days and the latter by over 4 days, and compared with corresponding average periods for the preceding 10 years the average sick time has increased by nearly 6 days, but the average duration of each case is only longer by rather more than half a day.

The ratio of admission among men of the 1st West India Regiment was 1·500 per 1,000, and in the 2nd West India Regiment it was 1396·1. The mortality rate in the former was 7·66 and in the latter 14·49 per 1,000.

The admissions, deaths, invaliding, &c. in the different groups and orders of diseases are given in Abstract VIII.

General Diseases.—*Diseases dependent on Morbid Poisons.—Eruptive fevers* were represented by 11 cases of chicken-pox, most of which occurred at Jamaica. There was no admission for enteric fever, but there were 184 for other continued fevers, including one fatal case of cerebro-spinal fever at Jamaica. The admission ratio for these fevers, 152·7 per 1,000, though lower than in the preceding year is considerably above the average rate of the previous five years. The majority of these fevers occurred at Jamaica, 138 cases, or 216·3 per 1,000. *Dysentery* caused 20 admissions, or 16·6 per 1,000, being but little above half the corresponding rate in the previous year. No death occurred, and the cases were scattered over various stations. The remaining cases in the first sub-group of diseases were all due to mumps, 34, or 28·2 per 1,000, occurring chiefly in Barbados and Nassau. In the preceding year this affection was also prevalent, but at Jamaica.

Malarial Fevers caused 109 admissions and 3 deaths. The admission ratio, 90·5 per 1,000, is lower than in the preceding year by 55·9, but about the quinquennial average rate. Of the cases, 83 were ague, 1 fatal, and the remainder remittent fever, 2 fatal. The diseases were most prevalent at Honduras and Jamaica, but the strength of the troops at the former place was small. One death (from remittent fever) occurred at Nassau, and the other two deaths at Jamaica.

The admissions for *primary syphilis* were 89 in number, equal to a ratio of 73·9 per 1,000, which is lower by 19·0 than the corresponding ratio in the preceding year. If, however, the admissions for simple venereal ulcer be added in each case it is found that the ratio of admission for primary venereal sores exceeds that in the previous year by 131·4 per 1,000; this is dependent on the large number of 221 admissions for simple venereal ulcer, the ratio for this alone being 183·4 per 1,000. Compared with the average ratio of admission for primary venereal sores for the previous five years, 145·3 per 1,000, an increase of 112·0 is observed in that of the year under report. *Secondary syphilis* caused 32 admissions, or 26·5 per 1,000, which is higher by 4·2 than the previous year's rate, and than the average rate by 5·3. *Gonorrhœa* caused 240 admissions, the ratio, 199·2 per 1,000, showing an increase of 67·1 over the last year's rate, and one of 49·8 above the average. Including all forms of venereal disease, the ratio of admission amounted to 483·0 per 1,000, and the ratio of constant inefficiency on account of these diseases to 31·93, which are considerably in excess of the corresponding ratios in the preceding year, and also the quinquennial average ratios.

The number of admissions for *rheumatism* was 75, or 62·2 per 1,000, being lower by 23·5 than in the preceding year, but about the average rate. *Tubercular diseases* caused 10 admissions and 3 deaths; in the previous year there were 5 cases and 3 deaths. 8 of the cases were lung affections, and 2 of the deaths; the third death was due to tubercular meningitis.

Local Diseases.—*Diseases of the Nervous System* caused 14 admissions, including one case of mental disease, the remainder being either cases of neuralgia or paralytic affection. The admission ratio, 11·6 per 1,000, is below the average, and about half that of the previous year. *Diseases of the organs*

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West Indies Command.

of special senses caused an admission rate of 34·0 per 1,000, as compared with 22·3 in the preceding year. Ophthalmic and aural affections were both more frequent. *Diseases of the Circulatory System* caused 25 admissions, and with the exception of 2 of valve disease of the heart and 1 of aneurysm of the aorta all were cases of palpitation. The admission ratio, 20·8 per 1,000, is above the average rate, and a good deal above the previous year's rate. The admissions for *respiratory diseases* were 63 in number, or at the rate of 52·3 per 1,000, a decline of 21·8 from the previous year, but rather below the average. More than half the admissions were due to bronchial affections. Three deaths occurred, one from hæmoptysis, pneumonia, and pleurisy respectively. The admission ratio for *diseases of the digestive system* was 73·9 per 1,000 as compared with 100·9 in the preceding year. Including dysentery, now shown above, the ratio of admission was somewhat below the average. The cases were chiefly affections of mouth and throat, dyspepsia, and diarrhœa, and there were 13 cases of hepatic disease. Two deaths occurred, one from diarrhœa and the other from abscess of the liver. *Diseases of the lymphatic system* gave an admission rate of 54·0 per 1,000, being twice as great as in the previous year; and the rate of admissions for *diseases of the generative system* reached 215·8, due to the prevalence of simple venereal ulcers. *Diseases of the connective tissue and of the skin* were less frequent than in the previous year, the admission ratios having fallen to 23·2 and 50·6 per 1,000 respectively.

Injuries caused 105 admissions, equal to a ratio of 87·1 per 1,000, being rather less frequent than in the previous year. The admissions were generally of an ordinary character. Two deaths occurred, one from accidental drowning at Nassau, and one from contusion of chest at Jamaica.

Among the operations performed during the year was an amputation at the ankle joint on account of scrofulous disease, with successful result; also ligature of radial artery on account of gunshot wound of hand, aspiration, and incision of abscess of liver, &c.

Invaliding.—80 men were discharged the service by invaliding, being in the ratio of 66·39 per 1,000, a considerable increase as compared with the corresponding ratio in the preceding year, and with the decennial average ratio. The principal causes of invaliding were tubercular disease of the lungs 13 cases, scrofula 5, rheumatism 6, diseases of circulatory systems 10, debility 5, diseases of organs of locomotion 7, &c.

Women and Children.—The average strength of women was 59. Among them there were 6 cases of sickness, and there was one death from albuminuria. In an average strength of 65 children there were 3 admissions into hospital, and the death of one child is recorded from debility.

Sanitary Conditions.—Deputy Surgeon General Tippetts reports that the health of the black troops was good throughout the year. There was no change in the barrack accommodation, and to prevent over-crowding it was supplemented by tents when necessary. The ventilation of the barracks is reported to be good and the drainage satisfactory. The water supply was good and sufficient, and the ablution arrangements satisfactory. The rations were of good quality and sufficient in quantity. The means of cooking are ample, and every facility was afforded for varying the diet. The clothing of the men is of good quality and well suited to the climate. The duties and employments of the men were of ordinary character, and proved by no means prejudicial to health. Recreations and amusements were provided for the men.

Among the sanitary improvements effected during the year were the formation of roof ventilators at the canteen at Barbados, and improvements in the latrine arrangements at Jamaica and Demerara.

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VII.—ON THE HEALTH OF THE TROOPS SERVING IN WESTERN AFRICA.

Sickness and Mortality.

I.—White Troops.

West Africa.

The white troops consisted of the European non-commissioned officers of the West India Regiments and the officers serving in the Command. The average strength of the former was 10; there were 13 admissions into hospital, no deaths, and 5 men were invalided. The admission ratio, 1,300 per 1,000, is lower than in the previous year. The admissions were 8 for remittent fever, 4 for debility, and one for alcoholism. The causes of invaliding were remittent fever 2 cases, debility 2, and rheumatism one case.

The average strength of officers was 29; there were 41 admissions, no death, and 8 officers were invalided. The ratio of prevalence of sickness, therefore, was 1413·7 and that of invaliding 275·6 per 1,000; the former being lower but the latter somewhat higher than the corresponding ratio in the preceding year. Of the admissions, 25 were cases of remittent fever and 7 debility; the remainder various affections. The causes of invaliding were, remittent fever 5 cases, and hepatitis, dysentery, and neuralgia one case respectively.

II.—Black Troops.

The average strength was 570, of which 387 were at Sierra Leone and 183 at Cape Coast Castle; being composed of detachments of the 1st West India Regiment, with head-quarters at the former place.

In the subjoined table are given the more important of the health statistics of the troops serving in the Command generally, as well as those of the troops in each division:—

1887.	Average Strength.	Admissions.	Deaths.	Invalids		Average daily Sick.	Ratio per 1,000 of Strength.				
				Sent to Westindies.	Finally Discharged.		Admissions.	Deaths.	Invalids sent to Westindies.	Invalids finally Discharged.	Constantly Sick.
Sierra Leone -	387	367	9	30	—	22·37	948·3	23·25	77·52	—	57·80
Cape Coast Castle	183	286	5	5	—	13·22	1563·8	27·33	27·33	—	72·24
Command -	570	653	14	35	—	35·59	1145·6	24·56	61·40	—	62·44

With regard to Sierra Leone, the admission and constantly sick ratios are considerably lower than the corresponding ratios in the previous year, but the

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West Africa. death rate is somewhat increased; and with regard to Cape Coast Castle, in a similar comparison the admission rate is a good deal lower, the constantly sick rate slightly so, and the death rate a little higher.

Taking the statistics of the whole force in the Command, it is observed that there is a considerable decrease in the admission and constantly sick rates, but a slight increase in the rate of mortality as compared with corresponding ratios in the preceding year; and in comparison with similar average rates for the preceding 10 years there is also a decrease in the ratios of admission and constantly sick, but to a less extent, and there is an increase in the death rate.

The average sick time to each soldier was 22·79 days, and the average duration of each case of sickness 19·39 days; the former being shorter than the corresponding period of the preceding year by 13·16 days and than that of the average of 10 years by 1·98 days; while the latter is longer in both these comparisons by 7·85 days and 4·81 days respectively.

With regard to the effect of age on sickness and mortality during the year, it is noticed that the highest ratio of admission was 2206·6 per 1,000 among men between 20 and 25 years; among men between 25 and 30 years it was 1139·7; and still lower over that age. Mortality was highest at the same period, 49·5 per 1,000, decreasing to 15·09 in the next quinquennium, increasing somewhat afterwards. As very nearly all the men were in their second year of service in the Command it is not possible to compare the ratios of sickness according to different durations of service.

The admissions and deaths in the different groups and orders of diseases are shown in Abstract IX.

General Diseases.—*Diseases dependent on Morbid Poisons.*—In the 1st sub-group of these diseases there were only 2 admissions for simple *continued fever* and 21 for *dysentery;* the latter being in the ratio of 36·8 per 1,000, which scarcely differs from that in the preceding year. Of the cases, 17 occurred at Cape Coast Castle, two being very severe, but none proved fatal. The other four cases occurred at Sierra Leone.

Malarial Fevers.—The admissions numbered 183, and deaths 4, being in the ratios of 321·0 and 7·02 per 1,000 respectively. Compared with the preceding year there is a very great decrease in the prevalence of these fevers, the admission ratio being but little more than one fifth of that in the previous year, and also below the average rate for the preceding five years. Remittent fever is the principal disease, ague being of less common occurrence. Of remittent fever there were 149 cases; 79 at Sierra Leone and 70 at Cape Coast Castle, with two deaths at each place. The Senior Medical Officer remarks that the newly arrived suffer more from this disease than those who have been some time on the coast; and the prevalence of this disease in the previous year among the troops then newly arrived from the West Indies is an example of this. The remaining admissions for malarial fevers were 34 cases of ague, all but one of which occurred at Cape Coast Castle.

Under the head of *septic diseases* are returned 3 cases of erysipelas and 2 of septicæmia, with one death from the latter.

In the sub-group of venereal diseases 25 admissions are shown for primary syphilis, being at the rate of 43·9 per 1,000, which is less than half the corresponding rate in the previous year. If, however, the admissions for simple venereal ulcer be added the ratio for primary venereal sores equals 73·7 per 1,000, which is lower by 51·5 than the last year's rate and than the average rate of the preceding five years by 26·4. *Secondary syphilis* caused only 4 admissions, or 7·0 per 1,000, above the last year's rate by 1·0, but considerably below the average. *Gonorrhœa* caused 70 admissions, equal to 122·8 per 1,000, much below the average, and only about half the previous year's rate. Including all forms of venereal disease the total admission ratio amounted to 203·5 per 1,000 as compared with 373·7 in the previous year, and 302·3 the quinquennial average rate. The ratio of constant inefficiency from these diseases, 19·00 per 1,000, was lower than in the preceding year by 4·58, but somewhat above the average rate.

Among the remaining admissions were 33 for rheumatism, two being cases of rheumatic fever. These affections slightly increased in prevalence. There were also three admissions for tubercular disease of the lungs, two of which had a fatal result.

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LOCAL DISEASES.—*Diseases of the nervous system* caused only 4 admissions, one being a case of mental disease. *Ophthalmic affections* were less prevalent than in the previous year, the ratio having declined by 18·8 per 1,000. *Diseases of the circulatory system* caused 9 admissions, 3 for valve disease of the heart, 1 fatal, 1 for pericarditis, fatal, and 5 for palpitation. *Diseases of the respiratory system* were at the rate of 49·1 per 1,000, dependent on 28 admissions, 20 of which were for bronchial affections, 3 for pneumonia, 2 for pleurisy, and 3 for hæmoptysis. *Diseases of the digestive system* caused 26 admissions, or 45·6 per 1,000. The principal illnesses were diarrhœa, dyspepsia, and hepatic affections. Among the remaining orders of local diseases those causing most sickness were *diseases of the lymphatic and glandular system*, 57·9 per 1,000, *diseases of the generative system*, 43·9, and *cutaneous diseases*, 129·8 per 1,000. All the foregoing ratios of admission compare favourably with those in the preceding year.

Injuries.—The admissions were 43 in number and deaths 3, being in the respective ratios of 75·4 and 5·25 per 1,000, as compared with 145·1 and 1·99 per 1,000 in the preceding year. The principal causes of admission were wounds 32 cases, 8 of which were wounds received in action against the turbulent tribes of the interior on the banks of the Ribbee river. The deaths were as follows:—One from heat apoplexy, on the march; one from gunshot wound of the abdomen received in action; and one from fracture of the base of the skull (at Cape Coast), the man being blown from a gun while in the act of loading it, and falling a distance of 60 feet on his head on to the rocks below the castle wall.

Invaliding.—35 men were invalided to the West Indies during the year, being in the ratio of 61·40 per 1,000, which is above the decennial average rate. In the previous year there was no invaliding. With regard to age, the highest ratio of invaliding was 165·29 per 1,000 among men between 20 and 25 years of age, the ratio in the succeeding quinquennium being 45·28; and with regard to service, nearly the whole of the invaliding took place among men in their second year of service in the Command. The principal cause of invaliding was *debility*, 16 cases, and among the remainder were 4 cases of tubercular diseases, 2 of rheumatism, 2 of cardiac disease, &c.

Women.—The average strength of women was 33, and there were 31 attacks of illness, 15 being cases of remittent fever and 2 of ague. There was one death from valve disease of the heart. The ratio of prevalence of sickness, 939·3 per 1,000, shows a considerable decrease as compared with that of the preceding year.

Children.—The average strength of children was 35, and there were 14 cases of illness, equal to a ratio of 400·0 per 1,000, which is less than half that in the previous year. There were 3 cases of remittent fever, 2 of bronchitis, and the remainder single cases of different diseases. One death occurred from tubercular meningitis.

Sanitary Conditions.—The Senior Medical Officer points out that a great improvement took place in the health of the troops in comparison with the previous year. The prevailing diseases were malarial fevers, though much less so than in 1886. Remittent fever is the most common disease, intermittent fever being of much less frequent occurrence.

At Sierra Leone men who suffered from debility consequent upon frequent attacks of remittent fever, and others whose health had deteriorated, were removed to the Leicester Peak Sanitarium, 1,500 feet above the sea, with very satisfactory results.

At Kortright Hill, at an elevation of 1,100 feet above sea level, two huts were placed in occupation of a company, and an officers' sanitarium is in course of construction.

The rainfall drainage of the rifle range is effected by open brickwork channels and drain pipes, and down the slope of the hill away from the source of the water supply for the troops in course of construction.

Sierra Leone has an abundant water supply of excellent quality, conveyed from the mountain streams to a large tank on Tower Hill, and from thence distributed to the town.

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West Africa.

At Cape Coast Castle the sanitary condition of the town is not good; there are numbers of dry earth latrines erected round the town, but the natives object to use them. The water supply is indifferent, and the shallow wells depend almost entirely on surface drainage; it is thought that some of the cases of dysentery may have been traceable to impurity in the water. Condensed water was issued in former years with satisfactory results, but the machinery became out of order and another condensing engine had not been supplied in the year under report. It is stated, however, that it is probable that at no distant date a system will be provided which will ensure an adequate purity of drinking water on the Gold Coast.

The sanitary condition of the barracks is reported to be satisfactory, and that of their vicinity fair, but the outskirts of the town of Cape Coast are still in a very insanitary condition.

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VIII.—ON THE HEALTH OF THE TROOPS SERVING IN SOUTH AFRICA AND AT ST. HELENA.

Sickness and Mortality.

South Africa and St. Helena.

The force serving in the South African Command during the year comprised the 6th (Inniskilling) Dragoons, four batteries Royal Artillery, one of which left for Hong Kong in October, the 1st Battalion Royal Scots; the 1st Battalion Royal Inniskilling Fusiliers, the 2nd Battalion South Lancashire Regiment until the middle of February, when it left for Singapore, having been relieved by the 1st Battalion North Staffordshire Regiment from Barbados, a company Royal Engineers, detachments Departmental Corps and Garrison Staff.

The subjoined table gives the more important of the health statistics of the troops which served in the Command, and in Abstract XXXIX. will be found the principal statistics of sickness and mortality of the individual corps:—

1887.	Average Strength.	Admissions.	Deaths.	Invalids		Average daily Sick.	Ratio per 1,000 of Strength.				
				Sent Home.	Finally Discharged.		Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged.	Constantly Sick.
South Africa - -	3,265	2,920	25	88	48	196·29	894·3	7·65	26·95	13·75	60·12
St. Helena - -	225	177	3	3		9·42	786·6	13·33	13·33		41·87
Total - -	3,490	3,097	28	91	48	205·71	887·4	8·02	26·07	13·75	58·94

Comparing the ratios of sickness and mortality among the troops in the Command with the corresponding ratios in the preceding year an increase of 78·8 per 1,000 has occurred in the ratio of admission, one of 3·74 in that of death, and one of 9·85 in that of constantly sick; and in comparison with similar average ratios for the previous ten years there is an increase of 56·8 per 1,000 in the admission rate, and an increase of 7·69 in the constantly sick rate, but there is a considerable decline in the death rate.

The average sick time to each soldier was 21·51 days, and the average duration of each case of sickness 24·24 days, which are longer than the corresponding periods in the previous year by 3·60 days and 2·08 days, and than the similar average periods in the preceding decennium by 2·80 days and 1·72 days respectively.

Taking the ratios of admission and mortality for South Africa and St. Helena separately, it is observed that all have increased to some extent when compared with corresponding ratios in the preceding year.

The highest ratios of sickness and mortality in the different arms of the service were in the artillery, the admission rate being 995·6, the death rate 10·99, and the constantly sick rate 65·38 per 1,000, followed by the infantry with corresponding ratios of 963·1, 8·91, and 62·46 per 1,000 respectively. With regard to individual corps, the highest admission ratio, 1897·2, per 1,000, was in the 1st Battery, 1st Brigade, South Irish Division, Royal Artillery, quartered chiefly at Cape Town, and the lowest ratio, 549·7, in H Battery,

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South Africa and St. Helena.

4th Brigade, Royal Artillery. The highest constantly sick ratio was also in the first-named battery, 125·4 per 1,000, but the lowest was 34·22 in the 7th Battery, 1st Brigade, Western Division. In this battery also was the highest mortality rate, 22·22, dependent on 2 deaths in a small average strength; in the cavalry regiment there was no mortality, nor in the Royal Engineers, and the lowest recorded ratio was 4·48 per 1,000 in the 1st Battalion Royal Scots. It is observed that as a rule corps quartered in Cape Town have a higher ratio of sickness than those quartered in stations in Natal.

With reference to the influence of age and length of service in the Command on sickness and mortality among the troops, it is observed that the highest ratio of sickness, according to age, was 1152·8 per 1,000 among men between 20 and 25 years of age, the next, 758·6, among men under 20 years, followed by 671·7 among men between 25 and 30 years, the ratios in the next quinquennium and over that age being still lower. The mortality ratio among men under 20 years of age was 17·24 per 1,000, but fell to 6·30 among men between 20 and 25 years of age, and to 6·23 in the next quinquennial period of age, after which it rose again. The highest admission ratio according to service in the Command was 1207·5 per 1,000 among men in their third year of service, 967·9 among men in their second year, 801·1 among men in their first year; in the fourth year of service the ratio was 523·6, and over that time it further declined. Mortality which was equal to 8·45 per 1,000 in the first year of service in the Command, fell to 2·67 in the second year, rose to 6·45 in the third year of service, after which it further increased.

The admissions, deaths, &c. in the different groups and orders of diseases will be found in Abstract X.

General Diseases.—*Diseases dependent on Morbid Poisons.* — Under *eruptive fevers* are recorded two cases of measles, and one case of chicken-pox. The Principal Medical Officer, Deputy Surgeon General J. G. Faught, states that the former disease was very prevalent among the civil population of South Africa, and in Cape Town, persons of all ages and all classes being attacked by it. *Enteric fever* caused 5 admissions and 2 deaths, being in the ratios of 1·4 and ·57 per 1,000, which are lower than the corresponding ratios of the previous year by 2·1 and ·94, and are considerably below the average ratios of the preceding five years. The per-centage of mortality to attack, 40, did not differ greatly from that in the previous year. Of the cases, two admissions and one death occurred in Cape Town, and three admissions with one death at Pietermaritzburg. The cases at Cape Town were probably contracted in the town where sanitation is very faulty, and where the disease is frequent among the civil population. The cases in Pietermaritzburg happened in March, April, and November respectively; the first two occurred in men who had recently landed from shipboard, where it is said cases of this disease had occurred; these two, however, recovered, but the last proved fatal. *Simple continued fever* caused 44 admissions, equal to a ratio of 12·6 per 1,000, a decrease of 29·0 from the corresponding ratio in the preceding year, and considerably below the average rate. This great decline cannot readily be traced to any one cause, nor was there any counterbalancing increase of any other febrile condition. Of the 44 cases 12 occurred in Cape Colony, 29 in Natal, and 3 at St. Helena. *Dysentery* shows 23 admissions, or 6·6 per 1,000, as compared with 4·3 in the previous year. 13 of the cases occurred at Etshowe, 7, one of which was fatal, at Pietermaritzburg, and one case at Cape Town, Simonstown, and Pinetown respectively.

Malarial Fevers caused 27 admissions, or 7·7 per 1,000, which is a good deal below the average rate, though only fractionally lower than the rate in the previous year. All but one of the cases were ague, and the Principal Medical Officer states that they were principally among troops recently arrived from other stations.

Under the head of *primary syphilis* 532 admissions are returned, equal to a ratio of 152·4 per 1,000 as compared with 120·3 in the previous year. If to these ratios the admissions for simple venereal ulcer in each year be added the admission ratio for primary venereal sores in 1886 is seen to be 149·5 per 1,000, and that for the year under report 205·1, being higher by 55·6 and above the quinquennial average ratio by 98·8. The admissions for *secondary syphilis* were 194 in number, and one death is recorded under this head. The admission rate, 55·6 per 1,000, is above the previous

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year's rate by 6·5, and above the average rate by 23·3 per 1,000. *Gonorrhœa* caused 365 admissions, being in the ratio of 104·6 per 1,000, which is above the average rate by 18·6, though below the previous year's rate by 1·7. Including all forms of venereal disease the total admission ratio was 365·3 per 1,000; this exceeds the rate in the preceding year by 60·4, and is above the average rate for five years by 140·7. The ratio of constant inefficiency on account of these diseases amounted to 26·94 per 1,000, which is greater than the corresponding ratio in 1886 by 4·65, and than the average ratio by 9·86. The Principal Medical Officer remarks strongly on the increase of these affections among the troops, as also among the civil population, and regrets that he cannot report the establishment of regulations on this subject. *South Africa and St. Helena.*

Alcoholism caused 11 admissions, or 3·1 per 1,000, as compared with 5·0 in the previous year. The Principal Medical Officer thinks the number small considering the cheapness and the bad quality of the drink to be found in every town in the colony.

Rheumatism was the cause of 193 admissions; the admission ratio, 55·3 per 1,000, is rather more than double that of the previous year, and is also above the average rate. The disease is also very prevalent among the civil population, and is doubtless partly due to the dampness and variability of the climate. Of the total number of cases, 5 were rheumatic fever, but no death occurred. *Tubercular disease* of the lung caused 14 admissions and 4 deaths; the ratios being 4·0 and 1·15 per 1,000, as compared with 2·0 and *nil* in the preceding year. The Principal Medical Officer repeats his remarks as to the unsuitability of the Cape peninsula for this affection, from his experience of the civil as well as of the military population. The remaining admissions were due principally to non-malignant growths or anæmia.

Local Diseases.—*Nervous diseases* caused 22 admissions, including 3 for mental disease; the majority of the remainder being due to neuralgia or to epilepsy. Two deaths are recorded, one from apoplexy and the other from mania. The admission ratio differs but little from that in the previous year, but is below the average. *Affections of the eye* were somewhat more prevalent than usual, though not so frequent as in the previous year. Nearly all the admissions were due either to conjunctivitis or iritis. *Diseases of the circulatory system* caused 51 admissions, or 14·6 per 1,000, an increase of 5·5 on the last year's rate, and somewhat above the average. 42 of the admissions were for palpitation, 3 for valve disease of the heart (one case fatal), 1 for aneurism of the aorta, and the remainder for varicose veins. The admissions for *respiratory diseases* were 63 in number, and there were three deaths, including that of an invalid. Two thirds of the admissions were bronchial affections, and among the remainder there were 6 cases of pleurisy, 4 of pneumonia, and 3 of pneumonic phthisis. An invalid died of the last-named disease. The admission ratio, 18·0 per 1,000, shows an increase of 3·1, but is below the average. *Diseases of the digestive system* were the cause of 272 admissions and 3 deaths. The ratio of admission, 77·9 per 1,000, is slightly lower than in the previous year, and is below the average rate. Affections of the throat alone caused 107 admissions, and among the remainder were 56 for dyspepsia, 35 for diarrhœa, and 28 for hepatic diseases. The deaths were due to hepatitis, cirrhosis of the liver, and intestinal obstruction, one case respectively. The admissions for *affections of the glandular system* were numerous, 230; the greater part being inflammation of inguinal glands. The admission ratio, 65·9, is considerably above the corresponding ratios in previous years. Of the remaining orders of local diseases *affections of the generative system* caused a high admission rate, 75·4 per 1,000, principally due to simple venereal ulcer; *diseases of the connective tissue*, with a ratio of 28·7, are somewhat in excess, but *diseases of the cutaneous system*, 46·7, are less than in the previous year though about the average of former years.

One admission is returned under the head of *poisons*, a man having, while drunk, swallowed a weak solution of oxalic acid used for cleaning brass, under the impression that it was some spirituous liquor. The man soon recovered.

Injuries.—327 admissions and 10 deaths are recorded, equal to 93·7 and 2·86 per 1,000 respectively, as compared with 102·3 and 1·01 in the previous year. The admissions for general injury comprised 6 for lightning stroke, and 3 for multiple injury. With regard to the former, it is reported that at Fort Napier during a severe thunderstorm a guard tent was struck by lightning;

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South Africa and St. Helena.

one man was instantly killed and 6 men were more or less injured. In all the shock was severe, all being stunned and, in the majority, more or less burning and injury to clothing occurred. The cases of multiple injury were all fatal; one occurred at Etshowe from a kick from a horse; another at Pietermaritzburg was homicidal, a man being wounded and otherwise injured in a mutinous outbreak at that station; and the third was at St. Helena, resulting from a fall from a rock. There were two accidental deaths by drowning while bathing, and one death by hanging, judicial, on account of murder. The admissions for local injury were chiefly on account of contusions, wounds, and sprains. There were seven admissions for gunshot wound, accidental; three of the cases necessitated operations, one the removal of the hand, and the other two the removal of one and two fingers respectively; the remaining cases were simply flesh wounds. There was one death from gunshot, a case of suicide, a sergeant having shot himself through the head while in a state of temporary insanity induced by drink. There was also a death from bayonet wound received in the riot above alluded to.

Invaliding.—91 men were invalided home during the year, equal to a ratio of 26·07 per 1,000, which is above the corresponding ratio in the previous year by 7·69, and below the average ratio for the preceding 10 years by 32·24. Of the different arms of the service, invaliding was highest in the cavalry, 30·81 per 1,000, followed by 25·04 in the infantry, and 21·98 in the artillery. With regard to age, the ratio of invaliding under 20 years of age was 17·24 per 1,000, between 20 and 25 years 24·04, between 25 and 30 years 29·35, falling in the next quinquennium 23·73, after which it rose again. With regard to service in the Command, it is observed that among men in their first year the invaliding ratio was 15·36 per 1,000, in their second year of service 29·37, and in their third year 41·93, after which the ratio declined. The principal causes of invaliding were debility 21 cases, or 6·02 per 1,000, heart disease 12 cases, rheumatic affections 8, tubercular disease of the lungs 5, injuries 5, secondary syphilis 4, dysentery 4, &c. The number of men finally discharged was 48, or 13·75 per 1,000, as compared with 12·84 in the preceding year, and with 22·04 the decennial average rate. The chief disabilities causing final discharge were debility 9 cases, cardiac affections 6, tubercular diseases 5, injuries 5, ophthalmic affections 4, &c.

Officers.—The average strength was 137, and there were 50 attacks of illness. The ratio of prevalence of sickness, 365·0 per 1,000, is lower than that in the previous year by 78·7. There were no deaths. The principal causes of illness were rheumatic affections and injuries; 5 officers were invalided, two for rheumatism, one for palpitation, one for angina pectoris, and one for inflammation of glands.

Women.—The average strength was 200, and there were 73 cases of illness, being in the ratio of 365·0 per 1,000, which is higher than in the previous year by 100·2. The principal causes of illness were debility, diseases of the generative system, and febrile affections. One death occurred from pneumonic phthisis.

Children.—The average strength was 396, the attacks of illness 107, and there were 9 deaths. The ratio of prevalence of sickness was 270·2, and that of mortality 22·73 per 1,000, as compared with 173·4 and 22·61 per 1,000 in the preceding year. Nearly half the admissions, 49 cases, were due to an epidemic of measles; and of the remaining cases, the most frequent were bronchial affections and diarrhœa. The deaths were due to bronchitis in 4 cases, and to measles, debility, tuberculosis, meningitis, and enteritis, one case respectively.

Sanitary Conditions.—The Principal Medical Officer states that there was no prevalence of disease in the Command, the outcome of insanitary conditions; and that the general state of sanitation in which the troops live is very fairly satisfactory, especially considering some of their surroundings, most of which, however, are under revision.

An important change has taken place in the removal of the regiment usually stationed at Cape Town to Wynberg, a very healthy suburb, where huts have been erected, of superior construction and good ventilation. They are made of galvanized iron and lined throughout with wood. Each hut is occupied by 50 men in two rooms with small lavatory. Nine huts are beautifully placed

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on a good slope for drainage. The drainage arrangements were not completed, but were under consideration. A good supply of water is to be obtained from the Wynberg waterworks, and it is in contemplation to lay it on to all parts of the camp. *South Africa and St. Helena.*

The barracks at Cape Town have undergone some improvements, and at the Castle some old and worn out buildings have been removed, opening out Castle square, and giving free ventilation. The roofs of some of the barrack rooms which were very low have been raised and double windows added, giving more sunlight and freshness to the rooms. At Simonstown a room was added to the temporary hospital to increase the accommodation to meet the requirements of a large number of men, chiefly working parties completing some forts in course of erection.

In Natal the troops occupied the same quarters as in the previous year. The huts are not to be compared with those at Wynberg above alluded to, and they are said to require a good deal of repair, but, as it is believed to be in contemplation to reduce the garrison, nothing beyond great attention to sanitary particulars under somewhat unsatisfactory surroundings has been attempted.

With regard to hospitals, the Principal Medical Officer urges the provision at Wynberg of a good cottage hut hospital of 100 beds, with suitable offices and quarters. The hut at present occupied as a hospital is a fair sized building, with a total accommodation of 35 beds. The overflow of sick are, therefore, sent to Cape Town for treatment. At Cape Town the hospital remains in the same condition as heretofore, but there has been a successful endeavour to plant trees in the grounds which in a year or two will produce shade and also improve the general appearance of the place. At Simonstown hospital the number of beds has been increased to 12, and a separate bathroom has been provided. The hospitals in Natal are the same as heretofore, and have answered their purpose, generally, very well. At Pietermaritzburg it was necessary to supplement the accommodation by tents from time to time owing to the prevalence of venereal disease. The small hut hospital at Etshowe is very complete, and with the addition of tents could be expanded to meet the requirements of a small force acting in this direction.

With regard to water supply, it is said that no change has occurred during the year at the principal stations, Cape Town and Pietermaritzburg. The supply is from public companies, of quality above suspicion, and fairly abundant.

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IX.—ON THE HEALTH OF THE TROOPS SERVING IN THE ISLAND OF MAURITIUS.

Sickness and Mortality.

Mauritius.

The average strength of warrant officers, non-commissioned officers and men was 400, and the force was composed as follows:—The 9th Battery, 1st Brigade, Western Division, Royal Artillery, until the end of November, when it was relieved by the 2nd Battery, 1st Brigade, Southern Division; a detachment 1st Battalion Royal Inniskilling Fusiliers, which was relieved in September and November by drafts from the headquarters of the regiment at Natal; and a few men belonging to the Royal Engineers, to the Garrison Staff, and to Departmental Corps.

The following table gives the more important of the health statistics of the troops as a whole, and in Abstract XXXIX. will be found those of particular corps:—

1887. Average Strength.	Admissions.	Deaths			Invalids		Average daily Sick.	Ratio per 1,000 of Strength.				
		In the Command.	Of Invalids.	Total.	Sent Home.	Finally Discharged.		Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged.	Constantly Sick.
400	637	8	—	8	26	15	33·15	1592·5	20·00	65·00	37·50	82·87

Compared with corresponding ratios in the previous year an increase of 150·5 per 1,000 has occurred in the ratio of admission, and one of 7·08 in that of constantly sick, and there is a decline of 1·73 in the ratio of mortality; but in comparison with average similar rates for the preceding ten years the admission rate is lower by 703·5, and the rate of constant inefficiency through sickness by 4·25, while the death rate is fractionally higher. The average sick time to each soldier was 30·25 days, and the average duration of each case of sickness 18·99 days, the former being longer than the corresponding period in the previous year by 2·59 days, and the latter fractionally shorter; but compared with the similar average periods for the previous ten years, the sick time to each soldier was shorter by a day and a half, but the duration of each case of sickness longer by over five days.

The highest admission ratio was, as in the preceding year, in the artillery, and amounted to 2151·2 per 1,000, showing an increase of 421·2; the ratio constantly sick, 95·05, is also increased by 15·15. In the case of the infantry, the admission rate 1492·3 and the constantly sick rate 84·73 per 1,000 are higher than the corresponding rates for the previous year, but very slightly so. The sick rates for the Garrison Staff and Departments were low. Of the 8 deaths, 2 occurred in the artillery, 2 in the engineers, and 4 in the infantry. With regard to the influence of age, it is found that the admission ratio of men between 20 and 30 years of age was 2292·4 per 1,000, between 25 and 30 years of age it was 1340·0, and over that age 520·0. In the preceding year also it was noticed that the ratio of admission decreased with age. Mortality between 20 and 25 years of age was 11·69 per 1,000, in the next quinquennium 33·33, declining again beyond that period. As to service in the Command, it is observed that men under one year showed a low admission rate, 358·0 per 1,000; among men in their second year it increased greatly, to 1597·3; and among men in their third year still further, to 2833·3. The rate in the first year is very low compared with that of the preceding year. The mortality ratio in the first year of service was 24·69 per 1,000, in the second year it was 18·10, and over the third year it was 40·00; in the third year itself there was no mortality.

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The admissions, deaths, invaliding, &c. in the different groups and orders of diseases are shown in Abstract XI. *Mauritius.*

General Diseases.—*Diseases dependent on Morbid Poisons.*—Among the cases in the first sub-group of these diseases are returned one of *enteric fever*, which it is said was of doubtful character, and six of typho-malarial fever, of which three cases proved fatal. All the above were treated at Curepipe, but probably contracted at Port Louis.

Dysentery caused 25 admissions and one death, being in the ratios of 62·5 and 2·50 per 1,000, which are lower than the corresponding ratios in the previous year by 26·9 and 2·33 respectively. 21 of the cases were treated at Curepipe, and the remainder at Port Louis.

Malarial fevers caused 259 admissions and 2 deaths, equal to ratios of 647·5 and 5·00 per 1,000. The admission ratio is higher than in the previous year by 251·4, but is still a good deal below the average rate for the preceding five years. The cases comprised 122 of ague, and 137 of remittent fever. Of the former, 110 cases were treated at Curepipe, but 67 of them were transferred or admitted directly from Port Louis. Of the remittent fever cases too, 92 were treated at Curepipe, but 81 of them were either admissions or transfers from Port Louis. It will be seen, therefore, that 49 cases of ague and 34 cases of remittent fever occurred in men stationed at Curepipe. It is said that it is "most probable that these cases were either relapses or first attacks in men "who had been exposed to malaria in Port Louis or elsewhere, and were not "due to the climate of Curepipe, as up to the present the place has been sup-"posed to be above the limit of malarial miasma." The deaths were due to remittent fever, and both occurred at Port Louis.

In the sub-group of venereal diseases, 24 admissions are recorded for *primary syphilis*, equal to a ratio of 60·0 per 1,000 as compared with 38·7 in the previous year. Adding to these the admissions for simple venereal ulcer, it is found that the ratio for primary venereal sore in the year under report equals 157·5 per 1,000, which is greater than the corresponding ratio in the previous year by 94·6, and than the average ratio for the preceding five years by 30·5. There were 13 admissions for *secondary syphilis*, or 32·5 per 1,000, as compared with 21·7 in the previous year, and with 51·4 the average rate. *Gonorrhœa* caused 64 admissions, equal to 160·0 per 1,000, an increase on the previous year's rate by 46·5, and on the average rate by 58·7. Including all forms of venereal disease, the total admission rate was 350·0 per 1,000, which is higher than the corresponding rate in the preceding year by 151·9, and than the average rate by 70·3. The amount of constant inefficiency from these affections was equal to 23·12 per 1,000, which is above the ratio in the preceding year by 6·58, and somewhat above the average.

Rheumatism was the cause of 12 admissions, or 30·0 per 1,000, rather more prevalent than in the preceding year. Two of the cases were rheumatic fever, but both did well.

Local Diseases.—The admissions under the different orders of local diseases were not numerous. *Nervous diseases* were represented by 3 cases of neuralgia and one of melancholia, and *diseases of organs of special senses* included one of ophthalmic and 2 of aural affection. Among 13 cases of *diseases of the circulatory system* were 11 of palpitation, the others being one of valve disease of the heart and one of phlebitis. *Respiratory affections* show 6 cases of bronchial affection, 2 of asthma, and 1 of pleurisy. *Diseases of the digestive system* caused 37 admissions, equal to a ratio of 92·5 per 1,000, which is considerably below the rate in the previous year, and also below the average rate. The principal causes of admission were diarrhœa 14 cases, and hepatic affections 10 cases; and there was one death from abscess of the liver. Affections of the *lymphatic system*, with a ratio of admission of 62·5 per 1,000, were rather more frequent than in the preceding year. There were 5 admissions for *urinary diseases*, 4 of which were cases of hæmaturia, of which the medical officer in charge remarks "in the urine of three of the "patients I found the ova of Bilharzia hæmatobia, and in the urine of one I also found three specimens of the worm itself. The patients contracted the disease in Natal. Diseases of the *generative system* show an increased ratio of admission, mostly due to simple venereal ulcers; but diseases of the *connective tissue* and of the *cutaneous system*, with ratios of 17·5 and 45·0 per 1,000, were not much more than half as prevalent as in the preceding year.

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Mauritius.

Injuries caused 46 admissions, or at the rate of 115·0 per 1,000, being less frequent than in the previous year. Wounds and sprains were the principal causes of admission. There was one death by cut-throat, suicidal; no coroner's inquest was held, but it is stated that there was no doubt that the act was committed during temporary insanity brought on by excessive drinking.

Invaliding.—26 men were invalided to England, being in the ratio of 65·00 per 1,000, an increase of 26·36 on the previous year's rate, and one of 18·82 on the average ratio for the preceding 10 years. The ratio of invaliding according to age was highest among men between 20 and 25 years of age, and was 93·56 per 1,000; in the next quinquennium it fell to 33·33, but rose after that age. Invaliding according to length of service in the Command was greatest in the second year, the ratio being 72·36 per 1,000. The principal cause of invaliding was debility, 16 cases, chiefly due to attacks of malarial fever. Nervous diseases and constitutional syphilis each caused the invaliding of two men, and cardiac affections that of three men. There were also single cases of rheumatism, tubercular disease, and asthma. There were 15 men discharged the service by invaliding, equal to a rate of 37·50 per 1,000, an increase of 23·01 on the rate in 1886, and of 22·28 on the average rate. The principal disabilities were tubercular diseases, debility, and diseases of the circulatory system.

Officers.—The average strength was 22, and there were 8 cases of illness, 5 of them being attacks of malarial fever. The ratio of prevalence of sickness, 363·6 per 1,000, has declined from that in the preceding year. Two officers were invalided, one for tubercular disease and one for jaundice.

Women.—In an average strength of 15 there was only one attack of illness, excluding ordinary parturition, a case of remittent fever.

Children.—The average strength was 21, and 4 children were attacked with illness, being at the rate of 190·5 per 1,000, slightly less than the previous year's rate. Two of the admissions were for remittent fever. There were two deaths, one from immaturity at birth and one from convulsions.

Sanitary Conditions.—The Senior Medical Officer remarks on the unhealthiness of Port Louis, and the great prevalence of malarial fevers. He states that the Line barracks are but little above sea level, and the drainage is difficult in consequence. The officers' quarters at Fort George should have an upper story, should be built on a better site, and the men's quarters and barrack-rooms require more ventilation. There was considerable leakage from the roofs during the rains, and the rooms were often very wet. Generally speaking there was plenty of cubic space and superficial area in all occupied buildings during the year. A new hut to accommodate 48 men and 2 non-commissioned officers was erected at Curepipe, but was used as an auxiliary hospital. It is made of wood, well raised from the ground, and is drier than the hospital, which unfortunately is built of porous stone. Cases of fever get well sooner in this building than they do in the hospital.

At Curepipe the ground about the barracks has been levelled, and a small cricket ground made. The drinking water obtained from a surface well is filtered through charcoal and pumped into reservoirs at the barracks, and thence distributed. The water is excellent. In some seasons it is said that there is a scarcity of water, and it is suggested that a deep well should be constructed.

The drainage is effected by means of glazed earthenware pipes, extending to about 150 yards from the barracks, terminating in a large cement-lined reservoir. A bathing tank, with dressing room, has also been constructed; it is small, but no doubt beneficial.

Though the station of Curepipe is, compared with Port Louis, comparatively healthy, yet the excessive and constant rainfall must have a depressing effect on the men, who are from this circumstance so much debarred from taking out-door exercise.

There was no change during the year in the soldiers' rations, and also none in their dress; but it is suggested that the men serving in Port Louis and the adjacent forts should have white clothing during the hot months.

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X.—ON THE HEALTH OF THE TROOPS SERVING IN THE ISLAND OF CEYLON.

Sickness and Mortality.

I.—White Troops.

Ceylon.

The force serving in Ceylon consisted throughout the year of the 8th and 9th Batteries, 1st Brigade, Southern Division, Royal Artillery, 1st Battalion Argyll and Sutherland Highlanders, detachments Royal Engineers and Departmental Corps, and Garrison Staff. The headquarters and five companies of the infantry regiment and a battery of artillery were stationed at Colombo, two companies of infantry at Kandy, one at Galle, and one battery of artillery, and a detachment Royal Engineers at Trincomalee.

The principal statistics of sickness and mortality among the troops generally are shown in the subjoined table, and those of particular corps in Abstract XXXIX.:—

1887. Average Strength.	Admissions.	Deaths			Invalids		Average daily Sick.	Ratio per 1,000 of Strength.				
		In the Command.	Of Invalids.	Total.	Sent Home.	Finally Discharged.		Admissions.	Deaths.	Invalids Sent Home.	Invalids finally Discharged.	Constantly Sick.
1,077	1,227	16	—	16	14	10	72·04	1139·3	14·86	13·00	9·29	66·89

Compared with corresponding ratios in the preceding year it is observed that there is scarcely any difference in the admission rate, only an increase of 2·4 per 1,000; in the mortality rate there was an increase of 4·33, and in the constantly sick rate one of 5·21. In comparison with average similar ratios for the previous ten years a decrease of 30·0 per 1,000 has occurred in the rate of admission, but there is an increase of ·23 in the rate of mortality, and one of 6·72 in that of constant inefficiency through sickness.

The average sick time to each soldier was 24·41 days, and the average duration of each case of sickness 21·43 days, being longer than the corresponding periods in the preceding year by 1·89 days and 1·63 days, and than the average periods of the previous decennium by 2·45 days and 2·65 days respectively.

The Senior Medical Officer, Brigade Surgeon S. Archer, remarks that "the "increase in the number constantly sick is in great measure to be accounted "for by the change made during the year in the mode of disposing of invalids. "Up to June they were sent home by contract steamer as occasion required, "but in that month orders were received directing that only in special cases "were men to be ordered passages in ships other than troopships. The "consequence has been that a number of invalids have remained in "hospital who would otherwise have been discharged. The average sick "time to each soldier and the average duration of each case of sickness have "similarly been influenced by this change."

The greatest amount of sickness, relatively, in one individual corps was in the Argyllshire and Sutherland Highlanders, the admission rate being 1205·3,

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Ceylon.

and the constantly sick rate 71·36 per 1,000; the next was in the 9th Battery, 1st Brigade, Southern Division, Royal Artillery, the ratios being 1030·0 and 63·20 respectively, followed by the 8th Battery of the same brigade with 962·3 and 52·08 per 1,000. Mortality was highest in No. 9 Battery, 30·00 per 1,000, and in the infantry regiment it was only 13·25 per 1,000. In the Engineers and Staff and Departments there were low ratios of sickness and no mortality.

With regard to the ages of the troops, it is observed that among men under 20 years of age the admission ratio was 631·6 per 1,000, among men between 20 and 25 years of age it was 1341·7, among men between 25 and 30 years it fell to 900·0, and still further among men over that age. The mortality ratio was the highest, 30·77 per 1,000, among men between 25 and 30 years of age, and 10·40 among men in the previous quinquennium. As to the influence of service in the Command on sickness and mortality, it is found that the admission ratio of men in their first year of service in the island was 1141·3 per 1,000, in their second year 1185·9, and over that time 719·5. Mortality was at the rate of 7·43 per 1,000 among men in their first year of service, 13·77 in the second year, and 48·78 among men over that service in the Command.

The admissions, deaths, &c. in the various groups and orders of diseases are shown in Abstract XII.

General Diseases.—*Diseases dependent on Morbid Poisons.—Enteric fever* caused 10 admissions and 7 deaths, being in the ratios of 9·3 and 6·49 per 1,000 respectively as compared with 10·5 and 4·22 in the preceding year. Both admission and mortality ratios are higher than those of the average of the previous five years, the former by 5·5 and the latter by 4·58 per 1,000. Of the 10 cases four occurred at Colombo with 3 deaths, and 6 at Galle with 4 deaths. The total number of admissions is the same as in 1886, but the mortality is greater. There is a decrease of 4 in the admissions at Colombo, and an increase of 4 at Galle. At Colombo the disease could not be traced to an insanitary state of the barracks or vicinity, and the cases were admitted at considerable intervals, one in May, one in August, and two in September. At Galle the admissions were all between the 14th January and 11th February, and were believed by the medical officer to be connected with the opening up and cleaning of a drain which had become blocked close to the barrack-room. The disease is endemic at both stations, and the towns are stated to be riddled with cesspits. At Galle enteric fever was unusually prevalent at the time of the outbreak among the troops.

The admissions for *simple continued fever* were 67 in number, being at the rate of 62·2 per 1,000, which is lower than the corresponding rate in the previous year by 43·2, and is also a good deal below the average rate. No death occurred, and the cases were generally slight febrile attacks of climatic origin.

Dysentery was the cause of 15 admissions, and one death. The ratio of admission was 13·9 per 1,000, an increase of 3·4 on the corresponding rate in the previous year. The death occurred at Colombo.

Malarial fevers.—The admissions numbered only 13. The ratio of admission, therefore, 12·1 per 1,000, compares very favourably with that in the previous year, 31·6, and it is also below the average rate. Of the admissions one was a case of remittent fever, and the remainder ague, most of which occurred at Trincomalee.

In the sub-group of venereal diseases *primary syphilis* shows 47 admissions, equal to 43·6 per 1,000, which is a great decrease from the corresponding rate recorded in the previous year; but if the admissions for simple venereal ulcer be added to these ratios for each year, the ratio for primary venereal sores in the year under report amounts to 210·7 per 1,000, as compared with 162·3 in the previous year, and with a quinquennial average rate of 141·6. *Secondary syphilis* caused 20 admissions, equal to 18·6 per 1,000, which is lower than the average rate by 11·8, and less than half the rate in the preceding year. The admissions for *Gonorrhœa* numbered 199, being in the ratio of 184·8 per 1,000, a decline of 11·2 from the corresponding rate in 1886, but above the average by 42·3. The ratio of admission for all forms of venereal disease equalled 414·1 per 1,000, being higher than the previous year's rate by 14·7, and than the quinquennial average rate by 99·5. The ratio

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of constant inefficiency on account of these diseases was 24·72 per 1,000, as compared with 25·48 in the preceding year, and with the average rate, 20·78. The Senior Medical Officer states that "venereal diseases are prevalent at "Colombo, Galle, and Kandy, but not at Trincomalee. There is a contagious "diseases ordinance in force, but it appears to have little effect in checking "the progress of these disorders." He also states that he pointed out the large amount of inefficiency caused by these diseases, and suggested that increased powers of police supervision should be given. This report was referred to the colonial authorities, but as instructions were received from the Home Government to take steps to repeal the Act nothing has been done, and there is no prospect of improvement. *Ceylon.*

The admissions for alcoholism were 10 in number; the ratio per 1,000, 9·3, differs but little from that in the previous year. There was no case of delirium tremens.

Rheumatism caused 15 admissions, one of which was a case of rheumatic fever. The admission ratio, 13·9 per 1,000, is below the last year's rate by 4·0, and is also below the average.

Tubercular diseases show 5 admissions, or 4·6 per 1,000, as compared with 1·1 in the previous year. All the cases were tubercle of the lung, and one case proved fatal. The remaining admissions, 35, in this group of diseases were, except one case of anæmia, all cases of simple non-malignant growths, chiefly warts, &c.

LOCAL DISEASES.—*Diseases of the nervous system* caused 14 admissions, equal to a ratio of 13·0 per 1,000, which is higher than in the previous year by 2·4, but below the average rate. The admissions comprised 6 for epilepsy, 4 for mental disease, 3 for neuralgia, and 1 for sclerosis of spinal cord.

Diseases of the organs of special senses caused 37 admissions, or 34·4 per 1,000, 16 being ophthalmic affections, principally conjunctivitis, and 21 aural diseases, chiefly inflammation of the external meatus. Both were slightly more prevalent than in the preceding year.

Diseases of the circulatory system.—Under this head 8 admissions are returned. The ratio, 7·4 per 1,000, is identical with that in the previous year, but is below the average. Among the cases treated were 3 of palpitation, 1 of dilatation of the heart, and 1 of angina pectoris; the last two terminated fatally.

Respiratory affections caused 11 admissions, and were, as in the previous year, below the average in frequency. The cases comprised 9 of bronchial affections, 1 of pneumonia, fatal, and 1 of pneumonic phthisis, from which also one death occurred.

Diseases of the Digestive System were the cause of 132 admissions, equal to a rate of 122·6 per 1,000, which is lower than the corresponding rate in the previous year by 37·6, and considerably below the average rate, even if the cases of dysentery, now returned elsewhere, were included for purposes of comparison. The principal causes of admission were affections of the mouth and throat 27 cases, dyspepsia 31, diarrhœa 35, and hepatic affections 18, including one fatal case of abscess of the liver.

Diseases of the lymphatic and glandular system.—For these affections 106 admissions are recorded, being at the rate of 98·4 per 1,000, which is more than double the corresponding ratio in the preceding year, as well as the quinquennial average rate. The Senior Medical Officer states that "in the "great majority of cases the inguinal glands were affected, and possibly in "some cases the affection was a sequel of unreported simple venereal ulcer; "but in most it appears to have been due to climatic and constitutional "causes." He also states that he is "unable to account for the large increase "of these diseases, unless it be owing to the increased number of young "soldiers, who appear to be specially liable to them."

The admissions for *diseases of the generative system* were very numerous, amounting to 213, or 197·8 per 1,000; of these 180, or 167·1 per 1,000, were cases of simple venereal ulcer. The great increase in admission rate for this order of diseases, more than double the last year's rate, is entirely due to the large number of these affections recorded.

The remaining orders of local diseases require no especial mention, except that *cutaneous affections*, which were noted to have decreased in frequency in the previous year, still further declined in the year under report.

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Ceylon.

Injuries.—136 cases of injury and 2 deaths are recorded, the ratios being 126·3 and 1·86 per 1,000. The admission ratio is a good deal below the average, but only slightly below the previous year's rate. The deaths were those of two privates of the Argyll and Sutherland Highlanders, who were drowned while bathing, and there was one admission for asphyxia from submersion, being that of a man of the same regiment, who very nearly lost his life in attempting to save one of them. The admissions include 30 for contusions, 37 for wounds, 55 for sprains, 2 for fracture, 1 for dislocation, &c., but none were of a severe nature. There was one case of attempted suicide at Galle, a man, in an attack of acute mania, cut his throat. The wound was severe, but not dangerous. There was a history of hereditary insanity, and it is stated that he had been previously confined in an asylum.

Invaliding.—The number of men invalided home during the year was 14; the ratio per 1,000 was 13·00, lower than that in the preceding year by 1·75, and than the decennial average rate by 23·10. Of the men invalided, 9, or 13·37 per 1,000, were between 20 and 25 years of age; 2, or 7·69 per 1,000, between 25 and 30 years; and 3, or 28·30, over that age; and of the total number 2, or 7·43 per 1,000, were in their first year, and 12, or 16·52 per 1,000, in their second year of service in the Command. 11 of the invalids belonged to the infantry and 3 to the artillery. The principal causes of invaliding were tubercular disease of the lungs 3 cases, nervous affections 3 cases (including 2 of mental disease), and debility 2 cases. The number of men finally discharged by invaliding was 10, being in the ratio of 9·29 per 1,000, which is lower than the rate in the previous year by 1·24, and than the average rate for 10 years by 5·34. The principal disabilities necessitating discharge were tubercular diseases, nervous affections, and injuries.

Officers.—The average strength was 52, and there were 33 cases of sickness, being in the ratio of 634·6 per 1,000 as compared with 549·0 in the previous year. No disease was especially prevalent, and there was no death; but two officers were invalided, one for tubercle of the lung, and one for hernia cerebri, following trephining, which was performed after fracture of the skull sustained whilst on leave.

Women.—The average strength was 59, and there were 20 attacks of illness, equal to 339·0 per 1,000; a decline of 171·2 from the previous year's rate. Fevers, debility, and renal affections were the chief causes of sickness.

Children.—In an average strength of 96 there were only 14 admissions, or 145·8 per 1,000, a decrease of 126·9. Half the admissions were due to bronchitis, and there was one death from that disease.

Sanitary Conditions.—The Senior Medical Officer reports that "at all "stations the sanitary condition of the quarters is reported to be satisfactory. "There has been no overcrowding, and the barrack-rooms are thoroughly "ventilated. The water supply is generally satisfactory. There is sufficient "variety in the mode of cooking, but it is very desirable that an issue of "mutton be made twice a week, as at present the meat ration consists of "beef only.

"The following improvements have been carried out during the year:— "Pipes have been laid connecting the hospital at Colombo with the town "mains, and the water supply is now excellent in all respects. The old moat "of the fort has been completely filled up, and a large sewer now carries off "the surface drainage from the barracks and fort into the harbour. A "plunge bath has been built, and has proved a great boon to the men. "Several stagnant pools in the vicinity of the barracks have been filled up. "A prisoners' room for Lascar prisoners has been added to the artillery "guard-room.

"At Galle the drainage in the neighbourhood of the quarters has been "much improved. At Trincomalee the flooring of Nos. 2 and 3 barracks "has been renewed, and the provision of six married quarters for Europeans "is proposed for execution in the next year."

II.—Black Troops.

The black troops consist of one company Ceylon Gun Lascars, average strength 86, the Ceylon Company, Eastern Battalion, Royal Engineers, which was raised during the year, average strength 23, and a few Mounted Orderlies, average strength 12.

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The Gun Lascars are distributed between Colombo and Trincomalee, the Engineers are at the latter station, and the Mounted Orderlies at the former, where they act as an escort to the Governor. *Ceylon.*

The total average strength was 121, and there were 66 admissions into hospital, equivalent to a ratio of 545·4 per 1,000; and the average number constantly sick was 2·74, equal to a rate of 22·64 per 1,000. Both these ratios are higher than those in the year preceding, but the general health of these troops was very good. There was no death and no invaliding.

The chief causes of admission were simple continued fevers and injuries. A case of rupture of the urethra, caused by a fall across a log of timber, occurred at Trincomalee, but the man made a good recovery. No other case calls for remark.

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XI.—ON THE HEALTH OF THE TROOPS SERVING IN CHINA AND THE STRAITS SETTLEMENTS.

Sickness and Mortality.

I.—White Troops.

China and Straits Settlements.

The average strength of the troops serving in the Command during the year was 2,266. The composition of the force was as follows:—At Hong Kong, the 5th Battery, 1st Brigade, Eastern Division, Royal Artillery, and the 1st Battery, 1st Brigade, Lancashire Division; also, at the close of the year, the 7th Battery, 1st Brigade, Western Division to relieve the last-named battery; the 2nd Battalion Northamptonshire Regiment, and detachments Royal Engineers and Garrison Staff. At the Straits Settlements, the 2nd Battery, 1st Brigade, Southern Division, and the 6th Battery, 1st Brigade, Eastern Division, Royal Artillery; also, in December, in relief of the first named, the 9th Battery, 1st Brigade, Western Division; the 1st Battalion East Kent Regiment until March, when it was relieved by the 2nd Battalion South Lancashire Regiment; and detachments Royal Engineers, Departmental Corps and Garrison Staff.

The most important of the health statistics of the whole force in the Command, as well as those of the troops in each division of the Command, are given in the following table:—

1887. Stations.	Average Strength.	Admissions.	Deaths.	Invalids. Sent Home.	Invalids. Finally Discharged.	Average daily Sick.	Ratios per 1,000 of Strength. Admissions.	Deaths.	Invalided Home.	Invalids finally Discharged.	Constantly Sick.
Hong Kong	1,217	1,423	10	31	14	57·54	1169·3	8·21	25·47	6·18	47·28
Straits Settlements	1,049	831	3	3		40·54	792·1	2·86	2·86		38·64
Total	2,266	2,254	13	34	14	98·08	994·7	5·74	15·00	6·18	43·28

Comparing the statistics of sickness and mortality for the troops in the whole Command with those in the previous year a decrease of 179·8 per 1,000 has occurred in the ratio of admission, one of 5·71 in that of death, and one of 6·13 in that of constantly sick; and in comparison with the corresponding average ratios for the previous ten years a decrease of 73·1 per 1,000 is observed in the admission ratio, one of 3·90 in the mortality ratio, and one of 7·39 in the ratio of constant inefficiency through sickness. The average sick time to each soldier was 15·80 days, being shorter than in the previous year by 2·23 days, and than the corresponding average period for the preceding ten years by a day and a half. The average duration of each case of sickness, 15·88 days, was shorter than in the preceding year by half a day, and than the decennial average period by 2·61 days.

Taking the Hong Kong division of the Command, it is observed that compared with corresponding ratios in the previous year there is a decline of 28·5 per 1,000 in the admission ratio, and one of 4·49 in that of constantly sick; but in the mortality rate there is a fractional increase. The average sick time

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China and Straits Settlements.

to each soldier was 17·25 days, and the average duration of each case of sickness 14·76 days, which are shorter than the corresponding periods in the previous year by 1·65 days and 1·62 days respectively.

In the Straits Settlements there was, as compared with the preceding year, a considerable decrease both in sickness and mortality, the decline in admission ratio being as much at 359·1 per 1,000, in death rate 12·09, and in constantly sick rate 8·42. The average sick time to each soldier was 14·10 days, and the average duration of each case of sickness 17·80 days, the former being shorter by 3·08 days and the latter longer by 2·88 days than the corresponding period in the previous year.

The health statistics of individual corps will be found in Abstract XXXIX. Among the batteries of artillery, No. 5 Battery, 1st Brigade, Eastern Division, gave the highest ratios of sickness and mortality; but taking the artillery as a whole the admission ratio was 829·7, the death rate 9·59, and the constantly sick rate 40·93 per 1,000, each of which shows a considerable decrease as compared with the corresponding ratios in the preceding year.

Of the infantry regiments, the 1st Battalion East Kent gave the highest annual rate of admission, 1967·2 per 1,000, and the highest constantly sick rate, 95·24, a great increase on the similar ratios in the previous year. There was, however, no mortality. The regiment was in the Command a little over two months only.

The 2nd Battalion Northamptonshire Regiment gave an admission rate of 1275·1, a death rate of 5·56, and a constantly sick rate of 49·52 per 1,000. The first and last of these show a decrease, but the mortality rate an increase as compared with the ratios returned in the previous year.

The 2nd Battalion South Lancashire Regiment, which was nearly 10 months in the garrison, gave comparatively low ratios of sickness; the annual admission rate and constantly sick rates being 823·3 and 38·44 per 1,000; the mortality rate was 4·11.

As in the previous year the ratios both of sickness and mortality were low in the detachments Royal Engineers and Departmental Corps.

The highest ratio of admission according to age was 1143·6 per 1,000 among men between 20 and 25 years of age, and the next highest, 906·3, was among men between 25 and 30; in the preceding year, also, the highest ratios were at the same periods of age; among men under 20 years the admission rate was 878·4, and among men over 30 years of age it was 598·7. The mortality was all among men between 20 and 30 years of age, the ratio for the first half of that period 5·59, and that for the second half 9·52 per 1,000. With regard to length of service in the Command, the ratio of admission of men in their first year was 923·7 per 1,000, increasing to 1029·6 among men in their second year, and still further among men who had served over that time. In the previous year the highest sick rate was among men in their first year of service. The death rate was 4·24 among men in their first year's service, 6·69 among men in their second year, and 11·69 among men in their third year.

The admissions, deaths, invaliding, &c. among the troops in the Command in the different groups and orders of diseases are set forth in Abstract XLI.

General Diseases.—*Diseases dependent on Morbid Poisons.*—As in the preceding year there was no case of eruptive fever in either division of the Command. *Continued fevers* caused 100 admissions, equal to a ratio of 44·1 per 1,000, which is considerably lower than the corresponding rate in the previous year. 15 of the admissions were cases of *enteric fever*, of which 3 proved fatal. The admission ratio, 6·6 per 1,000, exceeds that in the preceding year by 4·8, and the average rate for the previous five years by 5·5. Of the cases, 9 occurred at Kong Kong, 6, with 2 deaths, happened in June in the 2nd Battalion Northamptonshire Regiment; two cases came from the Murray and four from the Victoria barracks, but in no instance did two cases come from the same block of buildings. Sanitary inspections were at once made to trace, if possible, the cause of the outbreak, but nothing could be discovered within the precincts of the barracks to account for it; but at the time of the occurrence there were cases of enteric fever in the city, where the drainage is very defective. The remaining three cases comprised one in a man who had disembarked from on board ship only two days prior to admission to hospital, one case from Kowloon and one from the McGregor barracks the origin of which

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China and Straits Settlements.

could not be traced. In the Straits Settlements there were 6 cases of enteric fever, 3 at Tanglin and 3 at Penang, the former all occurred in men who had recently arrived at the station; and of the latter one case is reported as probably due to drinking impure native beverages in the bazar; the other two cases, one of which was fatal, occurred to men a few days after landing at the station from on board ship on arrival from Natal; it is said that several cases of enteric fever had occurred among the crew of this ship during the voyage. *Simple continued fever* caused 85 admissions, equal to a ratio of 37·5 per 1,000, which shows a great decrease, 81·9, from the corresponding ratio in the preceding year, and is also considerably below the average rate. 33 of the cases occurred at Hong Kong and were of ordinary character, the remaining 52 cases occurred in the Straits Settlements, 27 at Tanglin, 18 at Fort Canning, and 7 at Penang; it is reported that they were due either to exposure to the sun, getting wet, or to climatic causes.

Dysentery shows 24 admissions, being a rate of 10·6 per 1,000, an increase of 3·1 on the corresponding ratio in the preceding year. 15 of the cases, one of which was fatal, occurred at Hong Kong; the greatest number occurred in the months of October and November, in men already weakened and debilitated by malaria and climate. The remaining 9 admissions occurred in the Straits Settlements, 8 cases at Penang and one case at Tanglin.

Malarial fevers were the cause of 674 admissions and one death. The ratio of admission was 297·4 per 1,000, which is a good deal above the average rate, but is below the corresponding rate in the previous year by 100·6. The ratio of constant inefficiency on account of these fevers, 6·84 per 1,000, has fallen by 3·39 from that in the previous year. The decline in prevalence of these fevers was, however, entirely in the Straits Settlements division of the Command; the Hong Kong division, on the other hand, showing an increase. The admissions at Hong Kong numbered 607, the ratio per 1,000 being 498·8, an increase of 112·8 over the corresponding rate in the previous year. The cases comprised 483 of ague, 110 of remittent fever, one being fatal, and 14 of malarial cachexia; these diseases were most prevalent in June, July, August, and particularly so in November. The Principal Medical Officer, Deputy Surgeon-General R. Lewer, remarks that "the past year in Hong Kong has "been an unhealthy one, in so far as the troops and civil population have "been affected by malarial influences. As is well known the whole island, "except its highest altitudes, is malarious, and during the past year the dis- "turbance of virgin disintegrated granite in wall making and preparing sites "has been followed as usual by an increase of the ordinary prevalence of "paroxysmal fevers at certain seasons. It has been computed that unless the "newly exposed earth is cemented or covered with turf it exhales malaria in "due season for at least two years. Malarial fever was so rife during early "autumn in the Western District that a commission was appointed to investi- "gate the causes of the outbreak, and to suggest remedial measures. In the "district in question there has been extensive upturning of the soil, and "certain areas are marshy. If further proof were required to demonstrate "the source and aggravation of malarial poison in the upturning of the soil, "it is forthcoming in the high rate of sickness from paludal fevers among the "troops who, from military exigencies, were employed in the recently con- "structed outlying forts during the months of June, July, and August, "notwithstanding that quinine was given to the men as a prophylactic, that "work was not commenced until 8 a.m. after breakfast, and the men returned "to their barracks at 6 p.m. to sleep." The admissions for malarial fevers in the Straits Settlements numbered only 67, being at the rate of 63·8 per 1,000, as compared with 409·8 in the preceding year. This enormous decrease occurred at Tanglin, where the cases decreased from a ratio of 694·3 per 1,000 to 88·6. Of the 67 cases 3 were remittent fever, and the rest ague; 53 cases of ague occurred at Tanglin, 11 cases of ague and 2 of remittent fever at Penang, and one case of remittent fever at Fort Canning. The very important reduction in these fevers at Tanglin is due, in the opinion of the medical officer in charge, to the great improvements effected in the drainage of the rifle range and its vicinity; to an exceptionally dry year, the average monthly rainfall only being one third that of the previous year; and to the fact that the regiment which arrived at the station in relief at the early part of the year came from South Africa, and was composed of seasoned troops, whereas the

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former regiment came almost direct from home, and was largely composed of young soldiers. Adverting to the prevalence of malarial fever in the previous year, the medical officer observes that he entertains no doubt of the share which special local influences had in producing it, and in his opinion the Principal Medical Officer concurs. The marshy rifle range, the extensive swamps, estimated to be about 5 square miles in area, situated to the east, south, and west, and reaching to within 300 yards of certain barracks, the occupants of which suffered severely, are sufficient to show special local causation.

Among venereal diseases *primary syphilis* caused 71 admissions, being in the ratio of 31·3 per 1,000 as compared with 31·7 in the preceding year. Adding to the above the admissions for simple venereal ulcer, 72 in number, the ratio of admission for primary venereal sore was 63·1 per 1,000, which is above the corresponding ratio in the preceding year by 22·1, and above the average rate of the previous five years by 24·4. *Secondary syphilis* was the cause of 65 admissions, or 28·7 per 1,000, which is a lower ratio than that in the previous year by 9·6, but above the average ratio by 5·2. The admissions for *gonorrhœa* numbered 221, equal to 97·5 per 1,000, as compared with 86·8 in 1886 and 88·8 the average rate. Including all forms of venereal diseases the ratio of admission was 189·3 per 1,000, which is above the corresponding ratio in the preceding year by 23·2, and above the quinquennial average rate by 38·3. The ratio of men constantly inefficient on account of these affections was 13·38 per 1,000, which is in excess of the rate in the previous year by 1·76, and of the average rate for five years by 2·59. In the Hong Kong division of the Command the admission ratio for all forms of venereal disease was 180·7 per 1,000, and the ratio of men constantly sick 12·22, which are below the corresponding ratios in the previous year by 17·2 and 1·79 respectively. In the Straits Settlements, on the other hand, there was an increase of these affections, the admission ratio, 197·3 per 1,000, being higher by 62·7, and the constantly sick rate, 14·42 per 1,000, by 5·19. It is mentioned by the Principal Medical Officer that at Hong Kong the majority of cases of primary syphilis were imported by drafts, and that the admissions for secondary syphilis were principally due to relapses in men of the Northamptonshire Regiment who had contracted primary disease at Cape Town. The admissions for venereal affections at Penang constituted nearly half the total number of admissions for all diseases at that station; while at Tanglin the admissions for venereal diseases were more than double the number in the previous year, and from the repeal of the Contagious Diseases Act a further increase in the future is anticipated. At Hong Kong, where the Acts were abolished in September, there was a decrease of disease, but it is said that voluntary medical examination still exists.

Alcoholism caused 9 admissions as compared with 20 in the previous year; four of the cases were delirium tremens. There was one death from *scurvy* in a man transferred from a troopship on its arrival at Hong Kong.

There were 20 admissions for *rheumatic affections*, 14 of which, including one case of rheumatic fever, occurred at Hong Kong, 3 at Tanglin, and 3 at Fort Canning. *Tubercular diseases* show 16 admissions for lung affection as compared with 2 in the previous year. All the admissions but one occurred at Hong Kong, but it is stated that in some cases the men were re-admitted after a sojourn at the sanitarium during the hot months. Other disorders of this group caused 15 admissions, most of them simple non-malignant growths; but there was one case of osteo-sarcoma of the jaw, in which excision of the right half of the lower jaw from the symphysis to the articulation was successfully performed.

Local Diseases.—*Diseases of the Nervous System* caused 13 admissions, more than half for neuralgia. One fatal case of inflammation of the membranes of the brain occurred at Tanglin; the disease was attributed to undue exposure to the sun. The admission rate for nervous diseases, 5·7 per 1,000, shows a decline of 3·6 from the rate in the previous year, and is much below the average rate. *Ophthalmic affections* show 26 admissions, or 11·5 per 1,000, about the average rate; the majority of the cases were conjunctivitis. Diseases of other organs *of special senses* caused 31 admissions, or 13·7 per 1,000, somewhat above the average, which is due to the large number of cases of inflammation of the external meatus. *Diseases of the circulatory system*

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caused only 9 admissions, the ratio, 4·0 per 1,000, being very much below the average. *Respiratory diseases* also, with an admission ratio of 21·2 per 1,000, were less frequent than usual, the decline from the previous year's rate being 8·8. The admissions were 48 in number, being divided nearly equally in the two parts of the Command. They included 35 cases of bronchial affection, 2 of pneumonia, and 4 of pleurisy. The admissions for disorders of the *digestive system* were 238 in number, being in the ratio of 105·0 per 1,000, which is in excess of the rate in the preceding year, and above the average rate. 154 of the admissions occurred at Hong Kong, and included 70 for diarrhœa, 17 for dyspepsia, and 28 for hepatic affections; one of the latter was a case of abscess of the liver, which was evacuated by operation; but the man died some days subsequently. Of the 84 admissions in the Straits Settlements 32 were for diarrhœa, 13 for colic, 12 for dyspepsia, and 7 for hepatic affections. There was one fatal case of peritonitis at Penang. *Diseases of the lymphatic and glandular system* caused an admission rate of 19·9 per 1,000, a decline of 2·7 from the previous year. *Diseases of the generative system* show an admission rate of 67·5 per 1,000, a considerable increase, due chiefly to the frequency of simple venereal ulcers. *Urinary diseases* were, as in the previous year, infrequent, the ratio of admission being only 4·0 per 1,000. The same ratio is observed also for diseases of *organs of locomotion*, which is considerably below the previous year's rate. Amputation of a toe was performed in a case of necrosis of the bone. *Diseases of the connective tissue* caused an admission rate of 21·6 per 1,000, which is less than half that of the preceding year. At Hong Kong in a case of diffuse unhealthy abscess, involving the neck and side of the face, severe hæmorrhage occurred, the source of which could not be traced, but it apparently came from the internal maxillary artery, and it was determined to ligature the common carotid artery, which was done; but three days afterwards the hæmorrhage recurred, it was therefore determined to find the source; this was traced to the internal maxillary artery, just as it passes behind the ramus of the jaw. With great difficulty a ligature was applied and the vessel secured. The man was in a serious condition, but he eventually did well, and was invalided to England. Diseases of the *cutaneous system* were less frequent than usual, and the admission rate, 67·1 per 1,000, is lower than in the preceding year by 24·1. Among the 152 admissions for various cutaneous affections were 30 cases of ringworm, 28 of which occurred at Tanglin; in the previous year also there were many admissions for this cause at that station.

Injuries were 216 in number, being in the ratio of admission of 95·3 per 1,000, an increase of 10·2 on the rate in the previous year, but still somewhat below the average of frequency. There were three admissions for general injury, two for sunstroke, both of which recovered, and one for multiple injury, which occurred to a man who fell, while in a state of somnambulism, 40 feet from the verandah of his barrack-room. His injuries were numerous and severe, but a fair recovery was made, and he was invalided. Two deaths resulted from burns, caused by the accidental explosion of some rockets. The admissions for local injury were principally wounds, contusions, and sprains. There were two deaths, suicidal, both cases of cut throat. In one case the supposed cause was financial difficulty, and a verdict of temporary insanity was returned. In the other case no motive could be assigned, and the verdict returned was that he committed suicide while under the effects of an attack of fever. Both the cases occurred at Hong Kong.

Invaliding.—The number of men invalided home during the year was 34, equal to a ratio of 15·00 per 1,000, which is above the previous year's rate by 5·31, but below the average rate for the preceding ten years by 25·45. Of the invaliding in the different arms of the service, it is observed that in the artillery 10 were invalided, or 23·98 per 1,000; in the engineers, 3, or 29·70, and in the infantry, 21, or 12·43 per 1,000. With regard to age, the ratio of invaliding among men between 20 and 25 years of age was 7·98 per 1,000, among men between 25 and 30 years of age 15·87, after 30 years the ratio still further increased. With regard to length of service in the Command, 31 cases, equal to 29·64 per 1,000, occurred in the second year of service, two cases, or 11·69, in the third year, and one, or 1·06 per 1,000, in the first year of service in the Command. The principal causes of invaliding were tubercular disease of the lungs, 6 cases, hepatic diseases, 6 cases, and debility, 5 cases. The number of

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men finally discharged as invalids was 14, or 6·18 per 1,000. This rate is lower than that of the previous year by 2·63, and than the decennial average rate by 11·86 per 1,000. The chief disabilities necessitating final discharge were debility, 3 cases, tubercular diseases, 3 cases, and nervous affections, 2 cases.

Officers.—The average strength of officers was 95, and there were 38 attacks of illness and 2 deaths, and 6 officers were invalided. The ratios per 1,000 of strength respectively were 400·0, 21·05, and 63·16. Compared with corresponding ratios in the previous year there is a decrease of 146·4 in the sick rate, and an increase of 21·92 in the invaliding rate; in the preceding year there was no mortality. The prevailing diseases were paroxysmal fevers and diseases of the digestive system. One death occurred from dementia and one from debility. The causes of invaliding were debility 2 cases, and dysentery, meningitis, hepatic disease, and abscess, one case respectively.

Women.—The average strength was 103, there were 96 attacks of illness, excluding ordinary cases of parturition, and 3 deaths. The ratio of prevalence of sickness was 932·0, and that of mortality 29·12 per 1,000, being higher than in the previous year by 121·5 and 8·07 respectively. Among the cases were 23 of fevers, including a fatal case of enteric fever at Penang, 7 of dysentery, with 2 deaths, both at Hong Kong, 17 of debility, and 10 of diarrhœa. 8 women were invalided to England from Hong Kong.

Children.—The average strength was 151, there were 85 attacks of illness and 8 deaths, being in the ratios of 562·9 and 52·98 per 1,000 respectively, the former being higher than the corresponding rate in the previous year by 146·3, and the latter lower by 30·35. The principal causes of illness were fevers, bronchial affections, and disorders of the digestive system. Diphtheria, dysentery, remittent fever, debility, convulsions, enteritis, diarrhœa, and hepatic disease, each caused one death. The Principal Medical Officer remarks that "the women and children at Hong Kong, who practically have to live at the "sea level all the year round, are pale and anæmic. Their weakened health "from the effects of climate is evidenced by their poor recuperative powers "when sickness supervenes."

Sanitary Conditions.—The Principal Medical Officer reiterates his remarks regarding the malarious nature of the soil of Hong Kong, and the aggravation and diffusion of malarial disease when that soil is disturbed and upturned. He remarks also that "so long as the troops are quartered at or near the sea "level, and the sources of malaria being of a nature that cannot be moved, "it is to be expected that there will be a continuance of the great inefficiency "and general deterioration of health from the recurrence of malarial fever. "The only measure calculated to improve the health of the troops in this "respect, is their removal to the Peak and heights in its vicinity, as "malarial influences are universal elsewhere. Military considerations, how-"ever, are said to render this step impracticable; and further, these altitudes "are often covered with mists during certain months, when clothing and "bedding become so wet that drying rooms are necessary, but, withal, resi-"dents there enjoy good health, and present a much more robust appearance "than those living on the lower levels."

The condition and the ventilation of the barracks were generally satisfactory, and there was no overcrowding, except for a short time in the Whitfield barracks at Kowloon during the musketry training, but as this was in the cold weather no ill effects ensued. Warming and lighting of barracks was satisfactory, and the means of ablution sufficient. With regard to the water supply at Hong Kong, it is remarked that from its catchment area being near public thoroughfares it is liable to pollution. It is, therefore, necessary to boil and filter all drinking water, but it is hoped that in a few months the supply will be furnished from the new waterworks at Tytain. The hospital accommodation at Hong Kong was insufficient during the hot season, but the emergency was met by transferring convalescents as soon as possible to the Sanitarium at the Peak, where residence proved decidedly beneficial.

Among the sanitary improvements at Hong Kong it is stated that additional accommodation for the families of the troops was provided, and two rooms were appropriated for the reception of sick women and children. At Kowloon, the peninsula on the other side of the harbour, quarters, and a mess room were almost completed for officers, and at Whitfield barracks a

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kitchen was provided for the sergeants' mess. Two slate baths were provided in the Wellington barracks, and a bathroom in the officers' quarters, Murray barracks.

With regard to the Straits Settlements, it is remarked that the enormous reduction in the prevalence of malarial fever is doubtless due in great measure to the more efficient drainage of the rifle range, as well as the effect on the swamps of the exceptionally dry year. The sanitary condition of the barracks and hospitals at all stations is generally satisfactorily reported on. During the year at Tanglin the two bungalows to accommodate 40 men each, noticed in last year's report as having been erected, were handed over and occupied. The disinfecting chamber which was erected was not taken over as it proved unsatisfactory in its working. A well has been sunk behind the canteen, and it has been recommended that water should be laid on to the barracks from the Singapore waterworks, but no steps were yet taken in that direction. At Fort Canning two married quarters and a wash-house were erected.

II.—Asiatic Troops.

The Asiatic troops consisted of Gun Lascars at Hong Kong, and a detachment of them at Fort Canning. At the latter place also a company of the Eastern Battalion Royal Engineers, 54 strong, was formed during the year. The average strength of these troops was 220, the admissions into hospital were 337, the deaths 5, and there were 2 invalids discharged the service. The admission ratio, therefore, was 1531·8 per 1,000, being higher by 198·5 than the corresponding rate in the preceding year. The death rate, 22·72 per 1,000, also shows an increase, one of 17·43, but the invaliding rate, 9·09, is lower. The ratio of constant inefficiency through sickness, 31·50 per 1,000, also shows a slight decline.

The principal cause of admission was malarial fever, no less than 226, or over 67 per cent. of the total number being due to this. Among other diseases respiratory affections, digestive disorders, and injuries were frequent causes. The deaths were due to remittent fever, 2 cases, and to beri beri, pneumonic phthisis, and gastric ulcer, one case respectively. Debility was the cause of invaliding in both instances. It is stated that there was a great increase in malarial fevers among these troops at Hong Kong, which was due to exposure during the construction of the forts; the men could not be relieved daily as was the case with the white troops, they, therefore, slept on the spot, and were consequently more exposed to sickness.

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XII.—ON THE HEALTH OF THE TROOPS SERVING IN INDIA.

Sickness and Mortality.

India. The average strength of the warrant officers, non-commissioned officers and men in India was 63,942 (exclusive of those on field service in Upper Burma); the admissions into hospital were 86,392; and the deaths 939, of which 902 took place in India, and 37 (being those of invalids) on the passage to or after arrival in England. The average number of constantly sick was 4505·00. The rates from these numbers are, for admissions 1351·1, for deaths 14·68, and for constantly sick 70·45 per 1,000 of the strength.

The sickness for each of the three Commands is shown in the following table:—

—	Average Annual Strength.	Admitted into Hospital.	Deaths.			Invalids sent Home.	Invalids discharged the Service.	Average constantly Sick.
			In India.	Of Invalids.	Total.			
Bengal - -	40,921	57,445	602	12	614	764	446	2850·24
Madras - -	11,738	14,574	152	10	162	364	157	906·82
Bombay - -	11,283	14,373	148	15	163	317	139	747·94
Total - -	63,942	86,392	902	37	939	1,445	742	4505·00
Ten years, 1877—86 -	559,899	852,145	8,966	562	9,528	19,212	8,849	37456·00

continued.

—	Ratio per 1,000 of Mean Strength.					Average Sick Time to each Soldier.	Average Duration of each Case of Sickness.
	Admitted.	Died.	Invalided Home.	Invalids discharged.	Constantly Sick.		
						Days.	Days.
Bengal - -	1405·8	15·00	18·67	10·90	69·65	25·42	18·11
Madras - -	1241·6	13·80	31·03	13·37	77·26	28·20	22·71
Bombay - -	1273·9	14·45	28·10	12·32	66·30	24·19	18·99
Total - -	1351·1	14·68	22·60	11·60	70·45	25·72	19·03
Ten years, 1877—86 - -	1521·9	17·02	34·31	15·80	66·90	24·42	16·04

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I.—Bengal.

Bengal.

The average strength of the troops serving in the Bengal Command during the year 1887 was 40,921 warrant officers, non-commissioned officers, and men. The principal statistics of the sickness and mortality among these troops are shown in the subjoined table :—

1887. Average Strength.	Admissions.	Deaths.			Invalids.		Average daily Sick.	Ratios per 1,000 of Strength.				
		In the Command.	Of Invalids.	Total.	Sent Home.	Finally discharged.		Admissions.	Deaths.	Invalids sent Home.	Invalids finally discharged.	Average constantly Sick.
40,921	57,445	602	12	614	764	446	2850·24	1403·8	15·00	18·67	10·90	69·65

Compared with the corresponding ratios for the preceding year a decline is observed in the admission ratio equal to 112·1 per 1,000; the constantly sick ratio is lower by 2·31, and the death ratio by ·80; and compared with similar average ratios for the preceding ten years there is a decrease of 191·4 per 1,000 in the ratio of admission, and one of 2·90 in that of mortality, but an increase of 1·17 is observed in the ratio of constant inefficiency through sickness.

The average sick time to each soldier was 25·42 days, and the average duration of each case of sickness 18·11 days. Compared with corresponding periods in the previous year the average sick time to each time soldier was shorter by ·84 days, and the average duration of each case of sickness longer by ·78 days, while compared with similar average periods for the preceding 10 years both were longer, by ·43 and 2·44 days respectively.

The loss to the force in the Command by death and invaliding to England was 1,378 men, or 33·67 per 1,000 as compared with 34·10 in the preceding year, and the loss to the army by death and final discharge as medically unfit among troops belonging to the Bengal Command was 1,060 men, or 25·90 per 1,000, a fractional increase on the corresponding ratio in the preceding year.

Regarding the decrease in the amount of sickness during the year, the Principal Medical Officer, Surgeon-General C. D. Madden, remarks that it was chiefly due to the reduction of the admission rates for venereal diseases, malarial fevers, diseases of the digestive system, and enteric and other continued fevers, in the order in which they are given.

Abstracts XV. and XVI. give tables, taken from the report of the Principal Medical Officer, showing the sickness and mortality among the troops in the different administrative divisions and in the various stations in the Command.

The highest rate of prevalence of sickness occurred in the Gwalior circle and was 2353·1 per 1,000, an increase of 730·8 on the rate in the previous year. This increase is said to have been due to the prevalence of malarial fevers produced by the mean temperature during the hot weather being very high and considerably above the normal average, while the rains, which commenced about the usual time, were very abundant and terminated early. These fevers, however, as they affected the Europeans, were generally of a mild type and did not increase the death rate. The next highest ratio was 1751·2 per 1,000 in the Lahore circle, followed by 1704·5 in the Meerut division; the lowest ratio was 1054·9 per 1,000 in the Rawal Pindi circle, Oudh and Sirhind being next above with 1252·1 and 1262·6 respectively. In addition to Gwalior, Rohilcund was the only district showing any increase of admission rate; in all the others there was a decrease, notably in the case of Quetta, where the decline reached 677·5 per 1,000. The decrease in the Allahabad circle was

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also considerable, being 388·6 per 1,000. The highest ratio of mortality in any circle was 25·34 per 1,000 in that of Allahabad, followed by 24·08 in Gwalior, and 20·51 in the Saugor district; the lowest ratio was 9·90 in the Quetta district, and the Sirhind and Rawal Pindi districts also had low admission ratios, 10·98 and 11·48 respectively.

The highest admission ratio of any station in the plains having an average strength of over 150 men occurred in Saugor, 2623·0 per 1,000, which is higher by 852·3 than the rate in the previous year, and 1092·6 higher than the decennial average ratio. This increase was due to the great prevalence of malarial fevers, many of the cases of which are said to have been severe and obstinate. The admission ratio at Amritsar was nearly as high as the foregoing, and was 2615·4 per 1,000; but though somewhat above the corresponding rate in the previous year was slightly lower than the decennial average rate. In this instance, also, malarial fevers were the principal cause of admission, more than half the cases treated being of this nature. The prevalence of ague in this station is thought by the medical officer in charge to be due to the extreme flatness of the country and to irrigation being extensively employed in its vicinity, also to the fact that the wells show that water is only 10 to 12 feet below the surface. At Delhi the admission ratio was 2569·0 per 1,000, and though this is high, yet it is lower than in the previous year by 118·8 and considerably below the decennial average rate; the greater part of the sickness which occurred was due to malarial fever. This was also the case at Mean Meer, which gives the admission ratio next in order, 2535·6, an increase on the last year's rate, but below the average rate. Muttra and Jhansi also both give high admission ratios, 2430·2 and 2304·7 respectively, both being above the corresponding rate in the previous year, and both a good deal above the corresponding average rate. In each case malarial fever was the prevailing disease, but regarding Jhansi it is said that though these fevers were prevalent yet the cases were mild. In Allahabad, where in the preceding year the admission ratio, 2791·4 per 1,000, was the highest in any station in the plains, in the year under report the ratio was only 1495·3 per 1,000, and is also below the average rate. The lowest ratio of admission in any station was 1075·3 per 1,000 at Sialkot, a decline of 176·9 from the previous year's rate, and 499·7 below the decennial average rate, Low ratios of admission also occurred at Campbellpore, 1098·1, Rawal Pindi, 1120·9, Lucknow, 1151·6, Jubbulpore, 1152·2, Umballa, 1173·1, and Bareilly, 1195·9 per 1,000. All these ratios are lower than the corresponding ratios in the previous year, and than the decennial average ratios.

At the hill depôts the admission rates varied from 1154·8 per 1,000 at Murree to 2397·0 at Naini Tal. At Landour and Dalhousie the ratios were 2146·5 and 1579·5 respectively, both being in excess of the corresponding rate for the preceding year, which was also the case with the ratio for Naini Tal. At Darjeeling the admission ratio was 1286·8, and was slightly higher than in the previous year. It may be remarked here that a considerable number of invalids from the Burma force were sent to Darjeeling, Naini Tal, Landour, and Kasauli. At the other hill depôts the admission ratios were considerably lower than in the preceding year, and at the hill stations, with the exception of Chaubuttia, Subathu, and Jutogh, the admission ratios were considerably lower than the average for the Command.

With regard to mortality at stations in the plains having an average strength of 150 and upwards, the highest ratio occurred at Nowgong, and was 34·14 per 1,000, considerably higher than in the previous year, and more than double the decennial average rate; this was mainly due to 7 deaths from cholera and 4 from enteric fever out of a total of 17. This station is closely followed by Benares with a death rate of 30·66, an increase of 14·11 over the preceding year and slightly above the average; out of a total of 13 deaths 6 were due to enteric fever and 4 to cholera. Allahabad had a death rate of 29·48, being 10·37 over the rate in previous year and 7·98 above the average rate; in this station also enteric fever and cholera contributed to the death rate. The ratios of mortality were high at Amritsar and Jhansi, 25·64 and 25·39 respectively, the former being above but the latter below the previous year's rate, while both are above the average rates. The lowest ratio of mortality occurred in Ferozepore, 5·88 per 1,000, a slight increase; next Shahjehanpur, 7·67, a considerable decrease; and then Barrack-

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Bengal.

pore, 7·97, scarcely differing from the rate in the preceding year. Among convalescent depôts the highest ratio of mortality was at Naini Tal, 45·23 per 1,000, greatly in excess of the rates in the previous years. The increase was due in part to deaths from cholera and from dysentery. Murree follows with 25·81, which was above the average but below the last year's rate; the high rate was mainly due to deaths from enteric fever. At Darjeeling the rate was high, 18·38, but considerably lower than in the preceding year. No death occurred at Pachmarhi, and Landour shows a low death rate, 6·37. At the other hill stations where healthy troops are quartered the highest ratio occurred at Cherat, 26·32, being higher than the average rate and that of the previous year; nearly all the mortality was due to enteric fever. The next highest mortality, 20·86, was at Ranikhet, the increase being due to cholera as well as enteric fever. At the remaining hill stations the rate varied from 3·66 at Topa to 14·49 at Chaubuttia.

In Abstract XL. will be found a table, taken from the report of the Principal Medical Officer, showing the most important of the statistics of sickness and mortality of the different arms of the service, as well as of the various corps which served in the Command during the year.

The average strength of the cavalry was 3,536, and the ratio of admission 1534·2, that of mortality 14·42, and that of constant inefficiency through sickness 72·34 per 1,000. Compared with the corresponding figures for the preceding year a decrease is observed in all three ratios, being 177·7 in the admission rate, 4·32 in the death rate, and 9·15 in the constantly sick rate. The average sick time to each soldier was 26·40 days, and the average duration of each case of sickness 17·21 days, the former being shorter by 3·34 days, and the latter by a fraction of a day than the corresponding period in the previous year.

Among the cavalry regiments the highest ratio of admission, 2257·6 per 1,000, occurred in the 3rd Dragoon Guards quartered at Muttra nearly all the year, and having a detachment at Chakrata for six months, but the rate of mortality, 11·27, is comparatively low; on the other hand, the lowest admission rate, 1049·2, and the highest death rate, 22·95, occurred in the 17th Lancers quartered at Lucknow, with a detachment at Ranikhet for six months. The lowest mortality rate, 9·71, was in the 6th Dragoon Guards at Sialkot. Constant inefficiency from sickness was greatest in the 8th Hussars stationed at Meerut with a six months' detachment at Chakrata, the ratio amounted to 88·89, the lowest ratio was 54·93 in the 17th Lancers.

Of the artillery the average strength was 6,094, and the ratio of admission was 1455·9, that of mortality 16·90, and that of constantly sick 69·90 per 1,000. Compared with the return for the previous year a decrease of 64·0 is observed in the admission ratio, but there was an increase of 3·47 in the death rate, and one of 1·04 in the constantly sick rate. The average sick time to each soldier was 25·51 days, and the average duration of each case of sickness 17·52, being longer than corresponding periods in the preceding year by ·38 and ·98 days respectively.

The ratios of sickness and mortality vary considerably in the different batteries, which were 55 in number, but of these, 8 had been but a short time in the Command. Omitting the latter, it is found that the highest ratio of admission occurred in No. 2 Battery, 1st Brigade, Eastern Division, quartered at Delhi and Agra, being 4065·6 per 1,000. Next in order of prevalence comes M 'Battery, 4th Brigade, at Saugor, with 3223·0, O Battery, 4th Brigade, at Meean Meer, with 2970·6, No. 7 Battery, 1st Brigade, Northern Division, lately from Burma and subsequently stationed at Barrackpore and Jutogh, 2589·3, No. 7 Battery, 1st Brigade, Southern Division, at Jhansi, with 2578·9, &c. The lowest admission ratios were 690·3 per 1,000 in D Battery, A Brigade, and 766·9 in E Battery, A Brigade, Royal Horse Artillery, quartered at Sialkot and Lucknow respectively; next, L Battery, 4th Brigade, at Ferozepore, 777·1, and K Battery, B Brigade, at Rawal Pindi, with 860·6. Mortality ranged from 69·93 per 1,000 in P Battery, 4th Brigade, stationed at Nowgong to *nil* in eleven batteries in different stations. Among batteries with high death rates were No. 9 Battery, 1st Brigade, Cinque Ports Division, 35·29, at Jutogh and Umballa, and K Battery, 3rd Brigade, 32·89, at Meean Meer, and among instances of low ratios were 5·71 in L Battery, 4th Brigade, and 6·29 in A Battery, 1st Brigade, at Dinapore. Constant inefficiency was

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greatest in No. 2 Battery, 1st Brigade, Eastern Division, 144·59 per 1,000; the next ratio being 140·71 in No. 7 Battery, 1st Brigade, Northern Division; the lowest ratio was 30·06 in D Battery, A Brigade, the next above, 41·02 in J Battery, 2nd Brigade, at Rawal Pindi and Campbellpore, and 42·09 in E Battery, A Brigade. *Bengal.*

The average strength of the infantry was 29,887 and the ratio of admission 1405·9, that of death 13·79, and that of constantly sick 70·11 per 1,000. Compared with corresponding ratios for the preceding year a decrease is observed in each rate, being 123·3 in that of prevalence, ·59 in that of death, and 1·71 in that of constant inefficiency. The average sick time to each soldier was 25·59 days, and the average duration of each case of sickness 18·20, differing from the corresponding periods in the previous year, the former by a fractional decrease, and the latter by an increase of 1·06 days.

The regiment which gave the highest admission rate was the 2nd Battalion, Northumberland Fusiliers, quartered chiefly at Meean Meer; the ratio amounted to 2525·7 per 1,000. The next was 2519·0 in the headquarters of the 2nd Battalion, Lincolnshire Regiment, quartered at Roorkee, followed by 2488·9 in the other wing of the same regiment, quartered at Delhi, the headquarters, 2nd Battalion, Devonshire Regiment, at Jhansi and Sipri coming next with 2316·1. The lowest admission rate, 709·4, is observed in the half battalion, Cheshire Regiment, quartered at Solon during the hot season, the next above being 740·0 in the 2nd Battalion, Highland Light Infantry, at Umballa and Dagshai, followed by the 1st Battalion, West Riding Regiment, at Rawal Pindi and Gharial with 734·2, and the 1st Battalion, Suffolk Regiment, at Rawal Pindi and the Murree hills with 790·5. The highest mortality ratio was 31·03 per 1,000 in the half battalion of the Norfolk Regiment quartered at Benares, followed by the 1st Battalion, East Surrey Regiment, with 23·20 at Allahabad, and the 2nd Battalion, Wiltshire Regiment, with 23·37 at Peshawar and Cherat; the lowest mortality rate was 3·77 in the half battalion, Cheshire Regiment, at Solon, the next, 6·34, in the 2nd Battalion, Highland Light Infantry, followed by 7·71 in the half battalion, Scottish Rifles, at Shahjehanpur. The highest ratio of constant inefficiency was 162·48 per 1,000 in the detachments, Royal West Surrey Regiment, at Cawnpore and Chakrata, the headquarters of this regiment was on field service and the weakly men were left behind in consequence. The next rate was 110·38 in the 2nd Battalion, Lincolnshire Regiment, followed by 103·02 in the 1st Battalion, Royal Welsh Fusiliers, chiefly at Lucknow; the lowest ratio was 33·58 in the half battalion, Cheshire Regiment, the next being 37·77 in the 2nd Battalion, Highland Light Infantry, followed by 40·42 in the 1st Battalion, West Riding Regiment.

The following tables have been prepared to show the influence of age and of length of service in the Command on sickness and mortality among the troops:—

TABLE showing the Influence of Age on the Sickness, Mortality, and Invaliding among the Troops in the Bengal Command, during the year 1887.

Ages.	Average Strength.	Admissions.	Deaths.	Invalided.	Ratios per 1,000 of Strength.		
					Admissions.	Mortality.	Invaliding.
Under 20 years - -	2,383	1,532	22	8	642·9	9·23	3·36
From 20 to 24 years -	17,946	33,078	285	358	1843·2	15·88	19·95
„ 25 „ 29 „ -	12,522	16,908	186	247	1350·2	14·85	19·73
„ 30 „ 34 „ -	4,993	4,175	64	79	836·2	12·82	15·82
„ 35 „ 40 „ -	2,142	1,325	38	53	618·6	17·74	24·74
„ 40 upwards - -	674	403	7	19	597·9	10·39	28·19
Not stated - -	261	24	—	—	—	—	—
All ages - -	40,921	57,445	602	764	1403·8	14·71	18·67

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It will be observed the highest ratio of admission at any age was 1843·2 per 1,000 between 20 and 25 years, the next being 1350·2 between 25 and 30 years of age. After this the ratios steadily decrease still further with each quinquennial period of age. The results in the preceding year were exactly of a similar character, but in the year under report the admission ratios are somewhat lower in each instance. The mortality is low for men under 20 years of age, but from 20 to 25 years it rose to 15·88 per 1,000, falling slightly in the next quinquennium and rather more in that succeeding, but rises again to 17·74 among men between 35 and 40 years. In the preceding year also there was a decline from the period 20 to 25 years through the two succeeding periods, but an increase occurred in the subsequent one.

TABLE showing the Influence of Length of Service in the Country on the Sickness, Mortality, and Invaliding among the Troops in the Bengal Command, during the year 1887.

Years of Service in the Country.	Average Strength.	Admissions.	Deaths.	Invalided.	Ratios per 1,000 of Strength.		
					Admissions.	Mortality.	Invaliding.
Under 1 year - -	5,422	9,658	108	70	1781·3	19·92	12·91
From 1 to 2 years -	7,163	12,993	135	177	1813·9	18·85	24·71
„ 2 „ 3 „ -	6,726	10,418	100	121	1548·9	14·87	17·98
„ 3 „ 4 „ -	5,336	7,086	64	94	1328·0	11·99	17·62
„ 4 „ 5 „ -	3,927	5,546	40	66	1412·3	10·18	16·81
„ 5 „ 10 „ -	10,443	10,481	123	189	1003·7	11·78	18·10
„ 10 upwards -	1,643	1,239	32	47	754·1	19·48	28·61
Not stated - -	261	24	—	—	—	—	—
Total service -	40,921	57,445	602	764	1403·8	14·71	18·67

In the above table it is shown that the highest admission rates according to length of service in the country were in the first and second years of service, the ratio in the latter year being somewhat the higher. In the preceding year the relative position of these two ratios was reversed, the ratio in the first year being considerably the higher. After the second year there was a decline of admission ratio through the third and fourth years of service, with a slight increase in the fifth year, followed by a further decline in the period from five to ten years, and also over that length of service. Mortality, as in the previous year, was highest in the first year of service in the country, after which it steadily decreased through each year up to the fifth, and then in the period from five to ten years it increased again, and still further increased in men over ten years' service in the country.

The admissions, deaths, invaliding, &c. in the different groups and orders of diseases are given in Abstract XIV., and the prevalence of sickness and mortality from the various orders of diseases in each of the military divisions of the Command is shown in Abstract XVI.

GENERAL DISEASES.—*Diseases dependent on Morbid Poisons.*—Sub-group 1.—*Eruptive fevers* caused 182 admissions; of these, 39 were cases of small-pox, equal to a ratio of 1·0 per 1,000 as compared with ·5 in the previous year. It is, however, about equal to the average ratio of the preceding five years. Eight of the cases occurred at Agra. Of these, two were severe and fatal, but the rest were mild. There were also eight cases in Peshawar, three being confluent and severe, but the remainder mild. There were three cases at Mooltan, Ranikhet, Nowshera, and Rawal Pindi respectively, all modified and mild cases. Two cases, confluent, occurred at Meean Meer, two at Sialkot, one confluent and the other modified, and two, mild, at Jubbulpore. The remaining were single cases, one at Bareilly, Kuldunnah, Meerut, Sialkot,

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Fort Lahore, and Umballa respectively. The ratio of admission for other eruptive fevers was 3·5 per 1,000, which is lower than in the previous year by 4·3, and below the quinquennial average rate. Of the 143 admissions no less than 121 were cases of dengue, which occurred at four stations. The majority of the cases occurred at Umballa, the admissions, 92 in number, being only four less than in the previous year. The medical officer in charge states that the disease is endemic in the place and appears to be of malarial origin; at any rate, it appears when ague begins to be prevalent. It was usually of a mild type, but in some cases the pains lasted a considerable time. Belladonna in small doses seems most efficient in modifying the symptoms and relieving pain. At Fyzabad there were 24 cases of this disease; it was prevalent during the last two months of the year. There was nothing noteworthy in the cases, it is said, and convalescence was generally established in from four to seven days. 15 cases of measles occurred, five of which were at Peshawar and four at Quetta, the remaining six being single cases at different stations. A case of epidemic rose-rash and a few cases of chicken-pox and cow-pox completed the admissions for eruptive fevers. *Bengal.*

Enteric Fever caused 538 admissions and 166 deaths, being in the ratios of 13·1 and 4·06 per 1,000 respectively. Compared with corresponding rates in the previous year there is a decrease of 7·6 in the admission ratio, one of 1·55 in the mortality ratio, and one of ·90 in the ratio of constantly sick, and compared with similar average ratios for the preceding five years there is an increase of ·4 in the admission rate, one of ·37 in the death rate, and one of ·12 in the constantly sick rate. The per-centage of mortality to attack was 30·8 as compared with 27·1 in the previous year. In Abstract XVII. there is a table, taken from the report of the Principal Medical Officer, showing the stations in which the admissions and deaths from enteric fever took place in each of the four quarters of the year. It will be seen from this table that, as in previous years, the greatest prevalence of enteric fever was in the second quarter of the year, next in third, and least in the first quarter; mortality was highest in the third quarter, next in the second, and least in the first. The mortality to attack was 36 per cent. in the third quarter, 32 per cent. in the fourth, 28 in the second, and 21 per cent. in the first. All the different administrative divisions were affected in some degree, and the number of stations in which the disease appeared was 53. With regard to prevalence in districts, the highest rate, 27·5 per 1,000, was found in the Oudh division, but it is 17·0 lower than in the preceding year; the death rate also, 5·80, is lower by 1·47. The Allahabad division comes next with an admission rate of 22·8, nearly double that of the preceding year, and a death rate of 7·18, a marked increase. The rate in the Rohilcund district, 17·9, is less than half that in the preceding year, and the death rate, 4·23, is also fractionally less. The lowest admission rates were ·4 in the Presidency district, and 1·5 in that of Quetta; in the former the death rate was *nil*, and in the latter ·99. Of the different stations Lucknow, as in the previous year, shows the greatest number of admissions, 79 with 16 deaths; the admissions are lower, however, than in the previous year by 25. The medical officer in charge reports that "out of the "admissions no fewer than 69 came from among men of 24 years of age and "under, and 57 of the total number of cases occurred during the first two "years of residence in the country, showing the influence of recent arrival. "It may be observed, however, that while the cases were less numerous than "in the previous year, the type of the disease was more severe, the per-"centage of deaths to attacks in 1886 being 14 and in the year under "report 20. A remarkable fact, and one most difficult to explain, is that in "the cases in the preceding year there was practically no hæmorrhage "from the bowels, and no fatal cases resulted from it, while in the cases "in 1887 hæmorrhage was comparatively frequent, and several of the "deaths were due to this cause. Another point worth noting is that "in 1886 the bulk of the cases took place during the hot and dry "months, March, April, and May, and that in 1887 the admissions were "more evenly spread over the whole period. There does not seem any "means of accounting for this except on the supposition that the attacks "may have been due to local causes, as the climate was much the "same and the sanitary surroundings equally good in both years. In no "case was the disease satisfactorily accounted for, and it seems almost

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"impossible to imagine that insanitation in the barracks or lines could have "originated any of the attacks." At Fyzabad in the same division there were 23 admissions and 6 deaths, of which 12 cases, 2 fatal, occurred in the first quarter of the year, 4 and 2 deaths in the second quarter, the same in the third, and 3 cases in the last quarter. The medical officer states that "some of the "cases were extremely severe, and all, with one exception, were in young "soldiers between 20 and 23 years of age, whose average service in India "was a year and three months. The disease could not be traced directly to "any local insanitary condition, nor to faults in food or milk, and the fact of "the rareness of attacks among women and children, as also noticed last year, "would seem to exclude milk as a possible cause." At Ranikhet with a strength of 911 men, about one third of which were young soldiers, 20 cases of enteric fever occurred, with 5 deaths. In the previous year there were 60 cases and 5 deaths. The medical officer attributes the decrease of the disease to the introduction of an improved water supply. At the contiguous station of Chaubuttia also a comparatively large number of cases of enteric fever occurred, 23 with 3 deaths. The station was occupied by a wing of the Scottish Rifles, which arrived from Shahjehanpur about the middle of March, and shortly afterwards 6 cases occurred, which were believed to have been contracted on the march. The remaining cases originated in the station, but the medical officer was unable satisfactorily to trace the cause of the disease, but a good many of the patients acknowledged to have drank water in the *khuds* and villages outside cantonments. At Rawal Pindi there were 29 cases, less than half the number in the previous year; there were 8 deaths. Of the cases 11 with 3 deaths occurred in the last quarter of the year, 9 cases and 4 deaths in the third, 7 cases in the second, and 2 cases, 1 fatal, in the first quarter. At Meerut 28 cases and 13 deaths, as compared with 26 cases and 6 deaths in the previous year. 10 of the cases occurred in the fourth quarter of the year, the remainder, 5, 7, and 6, in the first, second, and third quarters respectively. At Allahabad there were 24 cases and 7 deaths, as compared with 14 and 3 respectively in the previous year. The medical officer remarks that "no "condition in common could be traced in connexion with these cases, except "that all were exposed to the influence of high temperature and to the risk "of drinks made from impure water in the bazar. All the cases, with one "exception, occurred in young soldiers shortly after their arrival." The number of cases of enteric fever at Sialkot was 21, less than one third of the number in the previous year, and the deaths were 10 as compared with 24. In the fourth quarter of the year there were 11 cases and 6 deaths, in the third 5 with 2 deaths, in the second 3 with 2, and in the first 2 cases. At Roorkee there were 20 admissions and 5 deaths, of which 17 and 4 deaths occurred in the fourth quarter of the year. In connexion with this the medical officer remarks that "for 10 months of the year the health of the troops was ex- "ceptionally good, but on the arrival of three batteries of artillery from "England an outbreak of enteric fever took place." It appears that 16 of the cases occurred in these batteries, and as they could not be traced to any local cause, the medical officer had no doubt that the disease was contracted on the journey up country. At the remaining stations where the disease occurred the admissions were below 20 in number. It may be mentioned that there were 18 cases of enteric fever with 5 deaths at the hill station of Murree, and 19 cases with 12 deaths at Cherat. At these stations the admissions occurred chiefly in the third quarter of the year. At neither of the stations could the medical officers attribute the disease to any local insanitary cause. During the preceding year there were only 3 admissions without a death at Murree, while at Cherat there were 17 admissions and 7 deaths. At Benares there were 15 admissions and 6 deaths, and at Chakrata 14 admissions and 4 deaths, as compared with 4 admissions and no deaths and 5 admissions and 1 death respectively in the previous year.

Other Continued Fevers.—There were 3,483 admissions for simple continued fever and 5 deaths, being in the ratios of 85·1 and ·12 per 1,000, as compared with 92·5 and ·08 in the previous year. The admission ratio is also below the average rate for the preceding five years. The ratio constantly sick, 2·90 per 1,000, is also lower than the previous year by ·27. The highest rate of prevalence of these fevers was 285·5 per 1,000 in the Peshawar district, being an increase of 7·8 on that for the preceding year. Allahabad with 182·5 has

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the next highest rate, this shows a decrease of 13·0. The lowest rate of prevalence, 20·8 per 1,000, occurred in the Rawal Pindi division, and is a decrease of 10·7 on the rate for the preceding year. Saugor with 38·8 has the next lowest rate of prevalence, being fractionally lower than the corresponding rate in the previous year. The districts of Gwalior, Quetta, and Lahore show a considerable increase in their ratios of prevalence as compared with those in the preceding year, viz., 72·4, 54·7, and 42·0 per 1,000 respectively, while the following districts show a considerable decrease, being as much as 98·8 in the Presidency, 48·8 in Oudh, and 39·8 in the Sirhind divisions. The 5 deaths occurred singly in as many different districts. *Bengal.*

Cholera.—The admissions for this disease were 135 in number and the deaths 92, being in the ratios of 3·3 and 2·25 per 1,000 as compared with ·9 and ·63 in the preceding year, and with the average ratios of the previous five years, 1·61 and 1·02 respectively. In Abstract XVIII. is a table, taken from the report of the Principal Medical Officer, showing the divisions and stations in which the admissions and deaths took place from cholera in each quarter of the year. Two thirds of the attacks and deaths, 91 and 61 respectively, occurred in the third quarter of the year, 28 cases and 20 deaths in the fourth, 8 cases, all fatal, in the second, and 8 cases, 3 fatal, in the first quarter. All the districts were affected with the disease to some extent, and the number of stations at which the disease appeared was 25. The greatest number of cases in any station was 23 in Peshawar, and among these were 10 deaths. All the cases took place in the months of July and August, and it is stated that the disease was probably imported from the city and its surroundings where it was at the time almost epidemic. "The outbreak took "place on the morning of the 21st July in a barrack occupied by a wing of "the 2nd Wiltshire Regiment, the weather at the time was intensely hot, the "atmosphere still and sultry, and no rain had fallen for above a year; the "last case occurred on the 3rd August. All the cases occurred in the same "corps, and the type of the disease, though severe, was not malignant." At Meerut there were 13 attacks and 10 deaths, the outbreak commenced on the 12th August, in a man of the King's Own Scottish Borderers, and after an interval of 15 days a second case occurred, which was followed by the third eight days afterwards, when the disease assumed an epidemic form. It is said that the rainfall was heavy, and especially for three days prior to the occurrence of the first case, and the air was unusually still and oppressive. At Allahabad 13 cases and 7 deaths occurred. Of the cases 5 took place in the first quarter of the year at Fort Allahabad, the remainder in the cantonment in the second and third quarters. The disease had been prevalent for some time in Allahabad, and it is said that no cause could be discovered for its appearance in barracks other than epidemic influence. The disease was of a very malignant type, the patients speedily went into a condition of profound collapse. There is one more death shown in the table, which is that of a man who died on furlough in the district, and whose body was brought into the station. At Ranikhet 12 attacks and 7 deaths occurred, all but one case at the end of July or early in August. It is stated that this was the first year in which the station was visited by cholera, and it is believed to have been introduced by coolies from Almorah, where the disease was prevalent at the time, and to have been brought in to the standing camp by Thibetan workmen who were building the huts. At Lucknow 10 attacks and 5 deaths are recorded. The disease was very prevalent in the surrounding district and in the city of Lucknow, but the large Sudder bazar, practically continuous with the infected city, escaped entirely, this immunity is believed by the medical officer to have been due to the almost perfect sanitary state of the bazar, while the city is well known to be in many parts overcrowded and dirty. The first case among the troops occurred on the 30th July, and 8 cases in all occurred in that quarter, there were two other cases, one in October and the other in November. At Agra there were 7 cases and 5 deaths. Four of the attacks occurred in the fort and the remainder in the cantonment; the disease was very prevalent in the city. At Meean Meer cholera, which for some time previously had affected the civil population, attacked the troops in September, causing 7 admissions and 4 deaths. At Nowgong also there were 7 attacks, all of which proved fatal; it is said that a battery of artillery

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which had only recently arrived in the country suffered most. At Dinapore there were 4 cases, all fatal, and the same at Benares; the disease was very prevalent among the civil population at both these stations. At Cawnpore 3 fatal cases occurred in the month of April, and at Jhansi cholera broke out in the hospital, as it did also in the previous year, causing 3 fatal cases; no insanitary cause was discovered for this outbreak in this particular building. At Sialkot 3 cases of cholera occurred, one being fatal. They all took place in the military prison towards the end of October. The prisoners had not been in communication with anyone outside the prison walls, and no other cases had occurred in the station or its immediate neighbourhood, but about 10 days before the outbreak some 3,000 prisoners had come into the cantonment from the district, parts of which were known to be infected. There were 2 fatal cases each at Jubbulpore, Naini Tal, and Quetta, of the last-named place it is said the disease was very prevalent in the vicinity, and was communicated to the station in October. At Umballa there were 2 cases of cholera, one of which was fatal; they occurred at the time the disease was somewhat prevalent in the district. There were single cases of cholera at Fyzabad, Chaubuttia, Sipri, and Fort Lahore, all of which proved fatal, and there were single cases, recoveries, at Dum Dum, Dalhousie, Rawal Pindi, and Attock. The remaining admissions, 11 in number, 10 of which had a fatal termination, occurred among troops on the march.

Epidemic Diarrhœa.—46 admissions are returned under this head, equal to 1·1 per 1,000. 32 of the cases occurred at Mecan Meer during the month of October, when cholera was also present. 13 cases occurred at Chaubuttia in July and August, but numbers of men and nearly all the officers suffered from this complaint, and were treated though not admitted. At this time cholera was present in the adjoining station of Ranikhet and the standing camp there. The medical officer states the water was muddy from heavy rains and contained a good deal of vegetable organic matter which the filters did not suffice to clean.

Dysentery caused 984 admissions and 23 deaths, being in the ratios of 24·1 and ·56 per 1,000 respectively, as compared with 26·7 and ·88 in the previous year. As in the preceding year, the highest ratio of prevalence was in the Presidency district, 52·0 per 1,000, and the next in the Saugor district, 33·6, and Allahabad, 33·4; the lowest ratio was 13·4 per 1,000 in the Quetta district, Peshawar being next above with 14·6, followed by the Rawal Pindi and Lahore districts with 18·3 and 18·4 respectively. Compared with last year's ratios, a considerable increase, 9·8, is observed in the ratio for the Saugor district, the only other marked increase being 6·9 in the case of Oudh; decrease on the other hand is very marked in the case of Quetta, being as much as 19·5; in Allahabad there is a decline of 13·3, and in the Lahore and Sirhind districts, 8·8 and 8·3 respectively. The highest mortality rate was 2·67 per 1,000 in the Presidency district, the next being 1·61 in the Gwalior circle; the lowest rates were ·17 in the Meerut and Rawal Pindi districts, the next above being ·21 in the Sirhind district. In a table in Abstract XX. it is shown that the greatest seasonal prevalence of dysentery was in the last half of the year, the ratio of admission for both quarters being 7·3 per 1,000, the least prevalence was in the first quarter, the ratio being 3·5, and the ratio for the second quarter was 6·0. Mortality was highest in the last quarter of the year, the rate being ·25 per 1,000; this was only ·15 in the third quarter, ·10 in the second, and ·05 in the first quarter.

The remaining admissions in this sub-group of diseases comprised only a few cases of mumps and influenza.

Malarial Fevers.—These diseases caused 14,574 admissions and 26 deaths, being in the ratios of 356·1 and ·64 per 1,000 respectively. Comparing these with the corresponding ratios in the preceding year, a decrease of 25·5 is observed in the former ratio, and one of ·29 in the latter, while compared with average ratios for the preceding quinquennium the decrease of admission ratio is equal to 114·2, but there is scarcely any difference in the death rate. The ratio of constant inefficiency from these fevers was 10·51 per 1,000, being higher than in the preceding year by a small fraction, but lower than the quinquennial average rate by 2·38. The highest ratio of prevalence in any division is observed in the Gwalior district, 1163·7 per 1,000, this is more than two and a half times greater than the corresponding ratio in the preceding

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year. The Deputy Surgeon-General attributes this undue prevalence to climatic influences; the mean temperature during the hot weather was very high and considerably above the average, while the rains, which commenced about the usual time, were very abundant and terminated early. The disease was not confined to the troops, but affected the civil population throughout the whole district. The next highest ratio, 627·5, occurred in the Meerut division, but it is 38·5 lower than the rate in the previous year. Next in prevalence was the Saugor district with a ratio of 593·2, an increase of 67·6; this increase was due to the unusual prevalence of these diseases at the station of Saugor, but the cause of this increase is not explained. The Lahore district follows with a ratio of 564·5, a decline of 19·7. The Deputy Surgeon-General remarks that "the health of the European troops at all stations in the division "was satisfactory until September, from which month at Meean Meer malarial "fever became almost epidemic; it was also very prevalent at Amritsar and "Fort Lahore. Three symptoms predominated in almost all cases, vomiting, "diarrhœa, and intense headache, and the prostration after the attack was "excessive and lasting." The lowest ratio of admission, 146·5 per 1,000, occurred in the Oudh division; this is, however, higher than in the preceding year by 35·9. It is said that the cases of ague were more numerous, but those of remittent fever less so than in the preceding year. In the Rawal Pindi division the admission rate was 180·6, which is lower than that in the preceding year by 57·9. In the Allahabad division the admission rate was 193·5, being less than half that of the preceding year. In the Presidency district the admission rate, though but slightly higher than the rate for the whole Command, is greater than that in the preceding year by 107·6, and reaches 362·6; this increase was doubtless due to the influx of a large number of sick and weakly men from the Burma Field Force. There was a remarkable decrease in the rate of prevalence of these fevers in the Quetta district, the ratio, 516·1, being lower by 766·0 than the corresponding rate in the previous year. The administrative medical officer in Quetta attributes the great improvement in the health of the troops in the district principally to the diminished rainfall, but also in great measure to the men being better housed and to more attention being paid to their clothing and sanitary arrangements. It is noticed that there was a considerable increase, 208·6, in the admission rate for troops on the march; this is attributable to the prevalence of the disease in the 2nd Northumberland Fusiliers on the march from Meean Meer to Rawal Pindi, in which there were 351 admissions in a total strength of 419. The regiment suffered so much from the disease while at Meean Meer that the date of its marching in relief was anticipated. *Bengal.*

Septic Diseases caused 72 admissions and 2 deaths. The admission ratio was 1·7 per 1,000 as compared with 1·2 in the previous year. The cases included 1 for sloughing phagedena, 69 for erysipelas, and 2 for pyæmia, both the last-named proving fatal. 25 of the cases of erysipelas occurred in Quetta alone, but none of them were of a serious nature.

In Sub-group IV. is found the sickness due to venereal affections. *Primary syphilis* shows 2,979 admissions, equal to a ratio of 72·8 per 1,000, which is lower than the corresponding ratio in the previous year by 48·7; the ratio of constantly sick for this disease was 5·47, a decline of 3·37. If the admissions for simple venereal ulcer be added to those for primary syphilis, an admission ratio for primary venereal sores is obtained equal to 139·6 per 1,000, and a constantly sick ratio of 9 54 per 1,000; comparing these with the corresponding ratios in the preceding year, a decline of 29·4 is observed in the former, and one of 2·17 in the latter, while compared with average ratios for the previous five years an increase is observed in both, being 26·7 in admission rate, and 1·51 in constantly sick rate.

Secondary syphilis caused 1,114 admissions into hospital, being in the ratio of 27·2 per 1,000; the ratio of constant inefficiency from this disease was 2·47 per 1,000. Compared with the corresponding ratios in the preceding year a decrease of 5·9 is observed in the admission rate, and one of ·33 in the constantly sick rate, but compared with quinquennial average rates an increase, by a small fraction, has occurred in either case. One death occurred in an invalid.

Gonorrhœa was the cause of 6,450 admissions, the ratio being 157·6 per 1,000, and the constantly sick rate was 10·31 per 1,000. In comparison with

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similar ratios in the preceding year an increase of 3·8 has occurred in the former, and one of ·15 in the latter; there is also an increase in either case when compared with corresponding average ratios, 9·8 and ·40 respectively.

Including all forms of venereal disease, the total admission ratio reaches 324·4 per 1,000, and is lower than the corresponding rate in the previous year by 30·5, but is higher than the similar average rate for the preceding five years by 36·9 per 1,000. The total amount of constant inefficiency from these diseases was 22·32 men per 1,000, this is lower than in the preceding year by 2·35, but higher than the quinquennial average rate by 1·99.

With regard to the prevalence of venereal disease in the different districts, it is seen from Abstract XVI. that primary syphilis, exclusive of simple venereal ulcers, gave the highest admission rate, 152·2 per 1,000 in Oudh, the next being 122·9 in Rohilcund, and the third 90·0 in the Rawal Pindi district; the lowest ratio of prevalence was 10·9 in Quetta, the next above 41·0 in the Lahore circle, and then 43·9 in the Presidency. Secondary syphilis gave the highest ratio of prevalence, 39·0 per 1,000 in the Meerut division, the next being 34·1 in Rohilcund, followed by 33·9 in the Lahore circle; the least prevalence was 10·4 in Quetta, and then 13·3 and 23·0 in the Peshawar and Rawal Pindi districts respectively. Gonorrhœa showed the greatest prevalence in the Presidency circle, the admission ratio 220·2 per 1,000, the next, 201·4, in the Lahore circle, and the next, 198·2, in Allahabad; the lowest ratio of prevalence was 107·7 in the Peshawar district, then 109·8 in the Quetta division, followed by 128·8 in the Sirhind division. The highest ratio of prevalence of these venereal affections was 379·4 per 1,000 in the Oudh division, followed by 321·9 in Rohilcund, and by 291·6 in the Presidency; the lowest ratio of prevalence was 131·1 per 1,000 in the Quetta circle, next 178·5 in the Peshawar district, and then 217·2 in Sirhind. Compared with the returns for the previous year an increase of rate of prevalence is observed in four of the administrative circles, the greatest being 65·9 in the rate for Oudh, and then 49·7 in that for Quetta; among the instances of decrease the most marked were 163·0 in the Peshawar district, 138·0 in the Rawal Pindi division, and 86·9 in the Allahabad circle.

It is remarked by the Principal Medical Officer that lock hospitals which had been tentatively closed at certain stations, viz., Allahabad, Cawnpore, Delhi, Meean Meer, Meerut, Peshawar, Rawal Pindi, Chakrata, Kasauli, and Murree, during 1885–86 were reopened at those stations in February-March of the year under report. Comparing the statistics of venereal disease, including simple venereal ulcer, for the present year with the corresponding ratios for the previous year when lock hospitals were closed at those stations, it is found that, with the exception of Delhi, where there was an increase of 17·0 per 1,000 in the admission rate for these diseases, all the other stations show a decrease in the rate of prevalence ranging from 22·9 at Murree to 221·0 at Allahabad, and the total for the ten stations shows a decrease of 125·5 per 1,000, while the total for the whole Command, excluding these ten stations, shows a decrease of ·2.

In the last sub-group of specific febrile diseases were 4 admissions and 3 deaths. One admission was a case of splenic fever, which occurred in a man at Barrackpore who was employed in making post-mortem examinations during an outbreak of anthrax among the horses at that station; he made a good recovery. The other three admissions were for hydrophobia, and were all fatal. One case occurred at Saugor, the man was admitted in May and denied having been bitten by any animal, but after his death a comrade stated that he had been bitten by a pet monkey one year and nine months previously; there was one case at Naini Tal in which the man had been bitten by a dog, believed to have been mad, three months before admission; the remaining case occurred at Dalhousie in May, it was stated by the man's comrades that he had been bitten by dogs at least three times, the last time in the month of February 1886, when the dog which bit him was killed as it showed signs of violence; the period of incubation in this case was 15 months.

In the next group of diseases *parasitic affections* caused 154 admissions, equal to a ratio of 3·8 per 1,000, which is lower by ·8 than the corresponding rate in the previous year. The greatest prevalence of these affections were in the Allahabad and Saugor districts, 9·3 and 7·4 respectively, and the least, 1·3, in Rohilcund. Of the admissions, 123 were for tænia solium, and 22 for tænia mediocanellata.

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The admissions for *scurvy* were 44 in number, less than a third of that in the previous year; the admission ratio was 1·1 per 1,000. Cases occurred in all the districts, except Gwalior, Oudh, and Peshawar. The districts showing the greatest number of cases were Meerut and Lahore, 13 and 12 respectively. No death occurred. *Bengal.*

Under the head of *alcoholism* 695 admissions and one death are recorded, being in the ratio of 17·0 and ·02 per 1,000 as compared with 16·3 and ·20 in the preceding year. 667 of the cases are returned as alcoholism, and 28 as delirium tremens, with one death. The highest ratios of admission, due to the abuse of alcohol, were 36·9, 30·8 and 30·1 in the Sirhind, Saugor, and Lahore districts respectively. The lowest prevalence was in Gwalior, 3·2, and next in Peshawar, 6·3.

Debility caused 805 admissions and 3 deaths, equal to ratios of 19·7 and ·07 per 1,000 respectively. The admission rate has declined by 2·6, and the mortality rate increased by ·04 as compared with the corresponding ratios in the preceding year. The highest rate of admission in any district was 44·8 per 1,000, in the Allahabad circle; this is an increase of 25·3 over that in the previous year; the Meerut division had also a high rate, 35·3. The Lahore division shows an admission rate of 25·4, but this is a decrease of 8·6. The Gwalior district, with 4·8, shows the lowest rate of admission, and is much below the rate in the preceding year.

In the group of general diseases not classified *rheumatism* shows 1,276 admissions into hospital and 1 death. The admission rate, 31·2 per 1,000, is lower by 3·4 than the corresponding ratio in the preceding year, and somewhat below the average rate. Of the admissions 95 were cases of rheumatic fever, and the death was due to this disease. The highest rate of prevalence, 46·9 per 1,000, occurred in the Sirhind district, but was lower than in the previous year by 13·1; the next highest rate was in the Allahabad circle, 35·1, but this is an increase of 8·3; Rawal Pindi and Quetta districts closely follow with ratios of 34·4 and 33·6 respectively, both being somewhat higher than in the preceding year; the lowest ratio of prevalence was in the Peshawar circle, 16·7, a decline of 11·2 from the rate in the preceding year.

Tubercular Diseases.—Under this head 149 admissions and 31 deaths are returned, including one death of an invalid; the ratio of admission was 3·6, and that of mortality, ·76 per 1,000, being lower than the corresponding ratios in the previous year by ·4 and ·33 respectively. The admissions were all for tubercular disease of the lungs. All the different districts gave some admissions, but the highest ratios occurred in the Allahabad and Lahore districts, 5·9 and 5·7 respectively, the former being higher by 3·5 and the latter lower by 1·1 than the corresponding ratios in the preceding year; the districts of Gwalior, Meerut, and Peshawar come next with ratios of 4·8, 4·6, and 4·5 respectively. The lowest ratio of prevalence was in the Saugor district, and was ·6 per 1,000; there was, as in the previous year, a low rate in the Quetta district, 1·5, and also in the Presidency and Sirhind districts, 1·8 and 1·9 respectively. The highest mortality rate, however, 1·48, occurred in the Sirhind district, and the next, 1·34, in the Presidency district, and that in the Lahore district was 1·30; no death occurred in either the Saugor or Gwalior district, and the lowest recorded rate of mortality was ·17 in the Meerut division.

Other diseases of this group caused 600 admissions and 4 deaths, including 2 of invalids. The ratios of admission and mortality were therefore 14·7 and ·10 per 1,000 as compared with 12·4 and ·13 respectively in the previous year. The admissions included 333 cases of non-malignant new growth, principally cases of simple papilloma; 2 cases of malignant disease, one being carcinoma, which had a fatal result, and the other epithelioma; 16 cases of scrofula, 4 of purpura; 241 of anæmia, one of which was fatal, and 4 of diabetes. The deaths of the two invalids were caused by malignant disease of the tongue and diabetes respectively.

LOCAL DISEASES.—*Diseases of the Nervous System.*—The admissions for nervous diseases numbered 474, and there were 13 deaths. The ratio of admission, therefore, was 11·6, and that of mortality ·32 per 1,000 as compared with 12·6 and ·33 respectively in the preceding year. The ratios for both these years are below the average rates of previous years, but this is in a great measure due to the registration of sunstroke and heat apoplexy elsewhere than under this order of diseases; 69 of the admissions were cases of

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mental disease, equal to a ratio of 1·7 per 1,000, which leaves the ratio for nervous diseases, other than mental, as 9·9. The highest ratio of admission for the latter in any district was 15·4 per 1,000 in the Oudh circle, and next, 15·2, in the Allahabad circle, the former being fractionally higher, while the latter is lower by 6·7 than the corresponding ratio in the preceding year; the lowest ratio of prevalence, 1·9, occurred in the Quetta district; this shows a considerable decline. In the Peshawar and Rohilcund districts the rates are low, 5·9, and also in the Saugor district, 6·2. The highest mortality rate occurred in the Gwalior district, 1·61 per 1,000, followed by 1·14 in the Saugor district; from these the death rates declined throughout the district until it is observed that in the Presidency, Allahabad, Oudh, and Quetta districts there was no mortality. The principal causes of admission were neuralgia, 266 cases, epilepsy 62, paralysis 21, vertigo 20. The deaths were as follows: apoplexy 5, inflammation of the brain 3, and abscess of brain, dropsy of arachnoid, paralysis, epilepsy, and tetanus, one death respectively. The admission ratios for mental affections in the different districts varied from 3·6 per 1,000 in the Presidency to *nil* in Gwalior. Among the cases 33 were returned as melancholia, 18 as dementia, and 11 as mania.

Diseases of the Eye.—567 admissions are returned, equal to a ratio of 13·8 per 1,000, which differs only from the corresponding rate in the previous year by a decline of ·2, and is below the average rate for the preceding five years. The Peshawar district shows the greatest prevalence of ophthalmic affections, the admission ratio being 24·7 per 1,000, which is an increase of 4·9 on the rate in the previous year; next comes Sirhind with a ratio of 17·1, a decline of 5·6, and the Meerut and Lahore circles with 16·7 and 15·8 respectively, both of which are rather higher than in the preceding year. The least prevalence was in Gwalior, where the admission ratio was only 8·0, a decline of 11·4 from the previous year. Of the cases treated 391 were conjunctivitis, the remaining admissions being for a variety of affections.

Diseases of other Organs of Special Sense.—The admissions numbered 500, the ratio being 12·2, which is lower than in the preceding year by 1·7, and a good deal below the quinquennial average rate. The highest ratio of prevalence in any district was 18·7 per 1,000, in the Presidency, and the lowest, 9·1, in the Peshawar district. Of the total number of admissions, 475 were for aural diseases, the great majority of the cases being inflammation of the external meatus. Of the 25 admissions for nasal affections 15 were cases of epistaxis.

Diseases of the Circulatory System.—The admissions were 516 in number, and the deaths 15, including 3 of invalids; the ratios of admission and mortality, therefore, were 12·6 and ·37 per 1,000 respectively, which are below the corresponding ratios in the previous year by ·5 and ·11, and are also below the quinquennial average ratios. The highest ratio of prevalence of these diseases in any district was 27·3 per 1,000 in the Gwalior district, in which the highest rate occurred also the year previous, and only differed fractionally from that of the year under review. The next highest rate was in the Meerut circle, 16·9, then Sirhind with 15·4, and the Presidency with 15·1; all these ratios are somewhat increased as compared with those in the previous year; the lowest rate of prevalence was 8·6 in the Oudh division. The highest death rate, ·85 per 1,000, occurred in the Allahabad division, the next was ·57 in Saugor, and then ·52 in the Lahore circle; in the Gwalior, Rohilcund, and Quetta districts there were no deaths. The most numerous admissions for any disease were 347 for palpitation, 90 for valvular disease of the heart, and 47 for varix. The deaths in the Command were due to valvular disease of the heart in 6 instances, to fatty degeneration of the heart in 2, and to endocarditis, dilatation of the heart, thrombosis, and aneurysm in one instance respectively; the deaths of invalids were all from valve disease of heart.

Diseases of the Respiratory System were the cause of 1,534 admissions and 38 deaths, including 2 of invalids. The admission ratio, 37·5 per 1,000, is above that in the previous year by 2·5, but is below the quinquennial average rate; the mortality rate, ·93 per 1,000, is the same as that in the preceding year, but is rather above the average. The highest admission rate in any circle was 73·7 in Quetta, an increase of 30·0. Next in order of frequency was 59·2 in the Peshawar district, an increase of 14·8, followed by 54·6 in Gwalior, which, however, is a decrease of 33·8; the lowest rates of prevalence occurred in the

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Presidency and Rawal Pindi districts, 27·5 and 27·4 respectively, both being slightly lower than in the preceding year. The highest mortality rate, 2·96 per 1,000, occurred also in the Quetta district, this being an increase of 1·88; the next ratio was 2·33 in the Lahore division, 1·61 in the Gwalior district, and 1·39 in the Peshawar district; there were no deaths in the Presidency and Saugor districts. Of the total number of admissions four fifths were cases of bronchial affection, and of the remainder there were 153 cases of pneumonia, 58 of pleurisy, and 23 for pneumonic phthisis; the admissions for other diseases did not exceed 20 each. The deaths in the country were 27 from pneumonia, 5 from pneumonic phthisis, 2 from empyema, 1 from passive congestion of the lungs, and 1 from bronchitis. The deaths of the invalids were from pneumonic phthisis. *Bengal.*

Diseases of the Digestive System caused 6,098 admissions and 78 deaths, two of the latter occurring in invalids who had left the Command. The ratio of admission was 149·0 and that of mortality 1·91 per 1,000, the former being lower by 20·1 and the latter higher by ·32 than the corresponding ratio in the preceding year, but while the admission rate is below the quinquennial average rate the mortality rate is slightly increased. The highest ratio of prevalence of digestive diseases in any of the administrative circles was 264·9 in the Gwalior district; this is higher than in the preceding year by 28·8; the next highest admission rate was 219·7 at Allahabad, a decline of 51·7; then the Sirhind circle with a rate of 172·2, and the Presidency with 170·9, both showing a slight decrease from the corresponding rates in the previous year. The Presidency circle also shows the highest death rate, 5·33 per 1,000, which is three times as great as in the previous year; Allahabad, which has the second highest admission rate, had also the second highest death rate, 3·38, but this, however, was only fractionally higher than in the preceding year. The Lahore circle, which had an admission rate of only 156·3, a decrease of 41·3 from the previous year, had a death rate of 2·08, which is a considerable increase. The lowest admission rate, 112·9, occurred in the Peshawar district, and the lowest mortality rate in the Quetta district. The admissions were principally caused by affections of the mouth and throat 1,441, diarrhœa 1,659, dyspepsia 1,066, and hepatic affections 1,107. The last-named comprised congestion of liver 323, hepatitis 523, hepatic abscess 65, jaundice 190, hypertrophy 2, and gall stones 4 cases. The deaths in the Command were due to enteritis in 5 cases, intestinal obstruction 4 cases, hepatitis 4, cirrhosis of liver 3, abscess of liver 50, peritonitis 5, perforation of intestines 1, and strangulated hernia 1 case; and the deaths of invalids were one from abscess of liver and one from inflammation of stomach.

In Abstract XIX. is a table, taken from the report of the Principal Medical Officer, showing the prevalence of dysentery, diarrhœa, and hepatitis in each of the divisions in the Command and the deaths caused thereby; and in Abstract XX. is a table showing the prevalence of, and mortality from, these diseases in each quarter of the year.

The sickness and mortality from dysentery has already been fully dealt with on a previous page, but from the above-mentioned tables it is observed that the admission rate for diarrhœa in the Command was 40·5 per 1,000, which is lower than in the preceding year by 15·6; there were 3 deaths from diarrhœa, equal to ·07 per 1,000. The greatest prevalence of diarrhœa was in the third quarter of the year, the ratio being 16·9, the next was in the second quarter, 10·6, followed by the fourth with 8·9, and the first with 4·7. The disease was most prevalent in the Gwalior circle, as in the previous year, the ratio was 149·3 per 1,000, an increase of 44·0; in Allahabad was the next highest ratio, 76·9, followed by Rohilcund with 57·2. The least prevalence was in the Peshawar circle, where the ratio was only 23·7 per 1,000; in Quetta and Rawal Pindi circles the ratios were also low, 29·2 and 30·4 respectively. In addition to the Gwalior circle diarrhœa was more prevalent in Oudh and Rohilcund than in the previous year, but in all the other administrative districts it was less so. Hepatitis, including abscess of the liver, gave a ratio of admission equal to 22·3 and a death rate of 1·39 per 1,000; compared with last year's return an increase of 2·1 is observed in the admission ratio and one of ·10 in the death rate. Hepatic diseases were most prevalent in the third quarter of the year, the ratio being 6·9 per 1,000, next in the fourth quarter 6·1, then in the second, and least in the first. With regard to

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mortality the sequence is different, the highest ratio, ·54 per 1,000 being in the fourth quarter, the next ·36 in the first, then ·31 in the third quarter, and, lastly, ·19 in the second quarter. The highest ratio of prevalence of hepatic disease in any district was 48·1 per 1,000 in that of Allahabad, the next 40·8 in the Presidency circle, followed by 31·0 in Sirhind; the lowest ratio was 8·9 in Quetta, then 14·6 in Rohilcund, next above being 15·0 in the Peshawar district, and then 17·0 in the Rawal Pindi circle. The highest mortality ratio was 5·32 per 1,000 in the Presidency circle, and the next 2·96 in the Allahabad district. In the Quetta district there was no death, and the lowest recorded ratio was 1·00 in the Rawal Pindi district. Compared with the return for the previous year the ratios of prevalence of hepatic disease have increased in the Presidency, Allahabad, Gwalior, Meerut, Sirhind, Rawal Pindi, and Quetta districts, and decreased in the remainder; while the ratios of mortality are greater in the Presidency, Allahabad, Gwalior, Lahore, Rawal Pindi, and Peshawar circles, and less in the remaining circles. The high ratio of prevalence of, and mortality from, hepatic diseases is principally due to the number of men invalided from Burma suffering from these affections.

Diseases of the Lymphatic and Glandular Systems.—813 admissions are recorded, equal to a ratio of 19·9 per 1,000, which is slightly lower than the corresponding rate in the previous year, and is somewhat above the average rate. The highest admission ratio in any district was 32·1 per 1,000 in Gwalior, and is an increase of 6·7, the next was 30·2 in the Presidency circle, also a slight increase; the lowest ratio of prevalence was in the Lahore district, 13·0, and is less than half that of the preceding year. The admissions were due principally to diseases of the inguinal lymphatic glands, 636 cases, and splenic affections, 115 cases.

Diseases of the Urinary System caused 76 admissions and 6 deaths, being in the ratios of 1·9 and ·15 per 1,000 respectively, as compared with 2·4 and ·13 in the previous year. The highest admission rate, 4·9 per 1,000, occurred in the Presidency district, and the highest mortality rate, ·52, in the Lahore division. The chief causes of admission were incontinence of urine, cystitis, and Bright's disease. The deaths were due to Bright's disease in five instances, and to nephritis in one.

Diseases of the Generative System gave 3,527 admissions, equal to a ratio of 86·2 per 1,000, which is above the corresponding ratio in the preceding year by 19·7. The admission rates in the different districts varied a good deal, from 149·3 per 1,000 in the Gwalior district to 34·8 in Oudh. More than two-thirds of the admissions were simple venereal ulcers, which have already been alluded to. For the rest of the admissions the principal causes were balanitis, orchitis, and urethral stricture.

Diseases of the Organs of Locomotion were the cause of 285 admissions and one death. The admission rate was 7·0 per 1,000, which is fractionally above the ratio in the preceding year, and is above the average rate. More than half the admissions were for synovitis. The cause of the death was periostitis.

Diseases of the Connective Tissue caused 831 admissions, equal to 20·3 per 1,000, which is below the ratio in the preceding year by 1·6, but is about the quinquennial average rate.

Diseases of the Skin.—Under this head the admissions were numerous, 2,818, and were equal to a ratio of 68·9, which is below the corresponding rate for the preceding year by 7·4, and is considerably below the average. Of the different districts the highest ratio of prevalence was found in the Allahabad circle, 101·0 per 1,000; this was also the case in the previous year. The next highest ratio was 97·5 in Meerut; the lowest ratio was 38·6 in the Quetta district, wth 44·4 in the Saugor district next above. In the Oudh, Meerut, and Quetta districts there was a slight increase, but in all the others there was a decrease. The principal causes of admission were eczema, ulcers, boils, whitlows, and ringworm.

Poisons.—Under this head 14 admissions and 5 deaths are returned, being in the ratios of ·3 and ·12 per 1,000 respectively. In the previous year there were 10 admissions and 2 deaths. The fatal cases were 3 from poisoning by alcohol, one from poisoning by charcoal fumes, and one from poisoning by cheese. In the case of charcoal poisoning the man lighted a brazier of charcoal in a small room in barracks, and on the following morning was found insensible and was taken to hospital, but all attempts to resuscitate him

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failed. In the case reported as poisoning by cheese it is said that the man ate for breakfast eight ounces of cheese bought at the coffee-shop, and was admitted to hospital at noon with vomiting and diarrhœa, followed by collapse, and he died the next day. The cheese in the coffee-shop was examined, but none found to be of a deleterious character. The other admissions included seven from poisoned wound, by stinging insects in three cases, by dead animal matter in two, by vegetable substances in one case, and by mineral substances in one. Also two cases of arsenical poisoning, one of copper poisoning, and one of mercurial poisoning. *Bengal.*

Injuries caused an admission rate of 121·9 and a death rate of 2·39 per 1,000, as compared with 121·1 and 2·19 respectively in the preceding year. General injuries numbered 108 admissions and 60 deaths. The admissions comprised 52 for heat apoplexy with 26 deaths, 39 for sunstroke with 6 deaths, 7 for multiple injury with 4 deaths, 1 for asphyxia by strangulation with 2 deaths, 1 for shock and 1 for starvation. The last-mentioned occurred in a man who is stated to have been lost in the jungle near Chunar for nine days, and according to his statement he was without food all the time; when found he was in a very emaciated and weakly condition, but soon recovered. There were 16 deaths by drowning, all but one accidental, 4 from asphyxia from plugging of the air passages with foreign substances, and 2 by judicial hanging, one at Lucknow and the other at Jubbulpore.

The admissions for local injury were 4,882 in number and there were 38 deaths. The principal causes of admission were contusions, wounds, sprains, fractures, dislocations, gunshot wounds, &c. The deaths were caused as follows:—Gunshot wound 26 cases, of which 4 were accidental, 2 homicidal, and 20 suicidal, simple fracture of the spine with compression of the cord, 3 cases; fracture of the vault of the skull, 2; fracture of base of skull, 2; and contusion of abdomen with rupture of viscera, laceration of brain without fracture, rupture of bladder, cut throat, and dislocation of spine without fracture, one case respectively. The cases of homicide were:—At Jullundur a lance-corporal of the Connaught Rangers was shot through the lungs by a private of the same regiment with fatal result; and at Jubbulpore a private of the Royal Warwickshire Regiment while on guard was fatally shot through the body by a comrade, who immediately afterwards attempted suicide but failed, and was eventually executed. There were also the following cases of accidental homicide:—One man was shot by a sentry at night, another was shot by a drunken man, and a third was killed by fracture of the skull, having been thrown by a comrade with whom he was fighting. Two accidentally self-inflicted gunshot injuries are reported, in one case the man discharged his carbine into his leg, and in the other the man while loading a gun shot himself in the head.

The cases of suicide were 25 in number; 20 were caused by gunshot, 2 by hanging, and 1 by cut throat, jumping from a height, and drowning respectively. In 9 of the cases no motive was discovered, in 5 drink was more or less the cause, in 3 money difficulties, in 2 depression through illness, in one case respectively bad news from home, jealousy, family bereavement, religious depression, and depression resulting from reduction in the ranks, and there was one case in which it is stated that the man had a motive and would not divulge it. In 17 cases a verdict of temporary insanity was returned, but the remainder were cases of suicide. In 6 regiments there were two suicides each, and the remaining 13 suicides were single instances in different corps. The average age of the suicides was 27 years and their average length of service 7 years. There were two attempts at suicide, one by cut throat due to depression of spirits at reduction from the rank of sergeant, and the other by gunshot wound while in a state of intoxication. There was also a case of gunshot wound in the hand, believed to have been self-inflicted by the man with the view of getting discharged from the service.

Among the surgical operations performed were the following:—Two amputations of the arm, one on account of gunshot wound, and the other on account of compound dislocation, both being successful; two amputations of the forearm in consequence of accidental gunshot injuries, also successful; an amputation at the upper third of the thigh, on account of gunshot injury, with fatal result; and several minor amputations with successful results. Extraction

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of a Morris's tube bullet from the scalp, of a charge of shot from the integuments of the back, and of portions of the skull which had been driven into the brain; all these were the result of accidental gunshot injury, and were successful. The following arteries were ligatured: the brachial once, the ulnar twice, and the interosseous of the hand twice; all necessitated by wounds. Tumours were successfully removed in nine instances. In a case of partial paralysis of the thumb and three fingers of the right hand, caused by a wound of wrist from the bursting of a soda-water bottle, the median nerve was cut down upon and the divided ends united by ligature, with very satisfactory result. Abscess of the liver was tapped in two instances by the aspirator, both successful; in two instances by incision, resulting in recovery in one case, while the other was still under treatment when report was made, and in three by the trochar, in one of which a fatal result ensued. There was one operation for traumatic cataract, and one for excision of the eyeball, successful. Varicose veins were obliterated by injection of pure carbolic acid, with complete success. Paracentesis abdominis was performed for ascites connected with hepatic abscess, of which disease the patient died. In addition to the above were operations for strangulated inguinal hernia, fistula in ano, hæmorrhoids, urethral stricture, removal of sequestrum, removal of loose cartilage, tenotomy, &c., all with successful result.

Invaliding.—The number of men invalided home during the year was 764, being in the ratio of 18·67 per 1,000, which is fractionally above the corresponding rate in the previous year, but below the similar average rate for the previous ten years by 13·54. With regard to the amount of invaliding in different arms of the service, it will be seen in Abstract XL. that the invaliding rate in the cavalry was 20·64 per 1,000, a decline of 1·72 from the corresponding rate in the previous year; in the artillery the invaliding ratio amounted to 24·45, an increase of 1·16, and in the infantry the ratio equalled 16·29, showing an increase of ·09 per 1,000. Among particular corps in each arm of the service the highest invaliding ratio in any cavalry regiment was 33·01 per 1,000 in the 6th Dragoon Guards quartered at Sialkot, and the lowest rate was 13·11 in the 17th Lancers quartered at Lucknow. In the artillery the highest ratio of invaliding occurred in No. 2 Battery, 1st Brigade, Eastern Division, and was 81·97 per 1,000, this battery was stationed at Delhi; in 15 batteries there was no invaliding and in several there were low ratios, such as 6·13 in E Battery, A Brigade, at Lucknow, and 6·17 in O Battery, 3rd Brigade, at the same station. In the infantry the highest invaliding rate in any regiment with fair average annual strength was 60·87 per 1,000 in the depôt, 2nd Royal West Surrey Regiment at Cawnpore, the headquarters of the regiment being in Burma; the next was 38·05 in the 2nd Battalion, Liverpool Regiment, at Fyzabad; the lowest ratio, 2·08 per 1,000, occurred in the 2nd Battalion, Royal West Surrey Regiment, at Rawal Pindi. With regard to the influence of age and length of service in the country on invaliding it is observed from a table on a preceding page that among men under 20 years of age there is, as would be supposed, a very low ratio of invaliding, but in the periods of age from 20 to 25 years and from 25 to 30 years there is a considerable amount of invaliding; in the next quinquennium there was a decline, but the ratios rose again through the subsequent periods. In the preceding year the invaliding ratios, after that of men of 20 to 25 years, increased steadily with age. Length of service in the country gives somewhat similar results; men under one year's service show a low invaliding ratio, but the ratio in the second year of service is nearly double, after which the ratio declines through the third, fourth, and fifth years of service, but rises again in the period from five to ten years, and to a considerable extent in service over ten years.

The principal causes of invaliding were as follows:—Dysentery, 20 cases, equal to ·49 per 1,000; malarial fevers, 30 cases, or ·73 per 1,000; rheumatism, 37, or ·90 per 1,000; tubercular disease of the lungs, 56, or 1·37 per 1,000; anæmia, 14, or ·34 per 1,000; secondary syphilis, 44, or 1·08 per 1,000; debility, 100, equal to 2·45 per 1,000; nervous diseases, 76, equal to 1·85 per 1,000, of which 37, or ·90 per 1,000, were cases of mental disease; diseases of the circulatory system, 122, or 2·98 per 1,000, of these 37 were cases of palpitation, the remainder being chiefly cases of organic cardiac disease; diseases of the respiratory system, 23 cases, or ·56 per 1,000; diseases of the digestive

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system, 71 cases, or 1·74 per 1,000, of these 44, or 1·07, were cases of hepatic affection, and 13, or ·32, were cases of diarrhœa; diseases of the organs of locomotion, 27 cases, or ·66 per 1,000; and injuries, 44 cases, or 1·07 per 1,000. Compared with last year's returns increase is observed chiefly in the number invalided for debility, which is higher by ·99 per 1,000; mental diseases show an increase of ·14, and diseases of the eye an increase of ·18 per 1,000. On the other hand, a decrease of ·39 per 1,000 is observed in those invalided for dysentery, one of ·17 in those invalided for tubercular disease, ·21 in nervous affections, and ·35 in diseases of the respiratory system, &c. *Bengal.*

The number of men finally discharged as unfit on medical grounds for further service was 446, equal to a ratio of 10·90 per 1,000, which is higher than the corresponding ratio in the preceding year by 1·47, but lower than the decennial average rate by 5·08. The chief disabilities which necessitated final discharge from the service were debility, 58 cases, equal to 1·42 per 1,000; tubercular diseases, 42 cases, or 1·03 per 1,000; diseases of the nervous system, 72 cases, equal to 1·76 per 1,000; of which more than half, 38, or ·93 per 1,000, were cases of mental affection; diseases of the circulatory system, 98 cases, or 2·40 per 1,000; diseases of the eye, 26 cases, or ·64 per 1,000; diseases of the organs of locomotion, 25 cases, or ·61 per 1,000; and injuries, 24 cases, or ·58 per 1,000. Compared with the return for the previous year an increase has occurred in the ratios of final discharge by invaliding in most of the different orders of diseases, but a decline is observed in several. The chief instances of increase are ·83 in diseases of the circulatory system, ·26 in diseases of the eye, ·23 in debility, and ·20 in injuries. The instances in which decrease is observed are none of them very marked.

Officers.—The average strength of officers in the Command is given in the return of the Principal Medical Officer as 1,172, the attacks of sickness 802, the deaths 12, and the number invalided to England 35. The rate of prevalence of sickness was, therefore, 684·3, that of mortality 10·24, and that of invaliding 29·86 per 1,000. Compared with corresponding ratios in the preceding year there is a slight decrease, 4·7 per 1,000, in the rate of prevalence of sickness, and one of 4·11 in the rate of invaliding, with a considerable decline, 15·89 per 1,000, in the mortality rate. Eruptive fevers caused 10 admissions, 4 being for small-pox, 1 for scarlet fever, 1 for measles, and the remainder for dengue. Two of the small-pox cases occurred at Rawal Pindi, one at Murree, and one at Meerut. The dengue cases were 3 at Umballa and one at Barrackpore. Enteric fever caused 24 admissions and 4 deaths, being in the ratios of 20·5 and 3·41 per 1,000 respectively, which are lower than those of the preceding year by 6·5 and 3·65 respectively; and compared with the corresponding ratios for men the rate of prevalence is higher by 7·4, but the death rate is fractionally lower. The 24 attacks of enteric fever were scattered over 15 stations, the greatest number in any one station being 4 at Rawal Pindi; at 6 stations there were 2 cases each, and in the remaining 8 there was one case respectively; 2 of the deaths occurred at Mooltan, one at Umballa, and one at Campbellpore. The mortality to attack was equal to 16·7 per cent. as compared with 25·8 in the previous year, and 30·8 among men. Three fatal cases of cholera occurred, one at Umballa, Quetta, and Mirzapore respectively. Under the head of malarial affections there were 151 attacks of ague, 15 of remittent fever, 1 case being fatal, and 2 cases returned as malarial cachexia. The ratio of prevalence of malarial affections was, therefore, 143·3 per 1,000, and the death rate ·85; these are lower than in the preceding year by 23·1 and 3·51 respectively. There were 23 attacks of rheumatic affection, equal to 19·6 per 1,000. Among local diseases those of the digestive system caused most of the illnesses, the most frequent diseases being diarrhœa 35 cases, hepatic affections 32, and affections of the throat 17 cases. The deaths of officers, in addition to those already mentioned, were one from diabetes, one from pneumonia, one from heat apoplexy, and one from fracture of the base of the skull; the last-named occurred at Dalhousie, and was due to an officer falling over a *khud* or precipice, to the depth of several hundred feet. The causes of invaliding were dysentery 3 cases, simple continued fever 1, ague 5, venereal affections 4, debility 3, rheumatism, tubercle of lung, anæmia, and diabetes one case each, nervous affections 3 cases, including one of mental disease; heart disease 2 cases, hepatic disease 3 cases, other digestive disorders 4 cases, injuries 2 cases, and abscess 1 case.

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Women.—The average strength of women was 1,828, the number of admissions into hospital was 1,431, and there were 31 deaths. Compared with corresponding ratios in the preceding year an increase of 67·2 is observed in the admission ratio, 782·8 per 1,000, and a decrease of ·75 in the mortality rate, 16·96 per 1,000. Among eruptive fevers there were 4 admissions for small-pox, one case at Campbellpore, Rawal Pindi, Meean Meer, and Delhi respectively, the last-mentioned having a fatal termination. There were also 5 admissions for measles. Enteric fever gave rise to 10 admissions, 4 cases with one death occurring at Murree, 2 cases with one death at Dinapore, and one case at Agra, Lucknow, Sialkot, and Rawal Pindi respectively. The admission and mortality rates were 5·5 and 1·09 per 1,000 respectively, being below the corresponding ratios by 3·3 and 3·07, and below the similar ratios for non-commissioned officers and men by 7·6 and 2·97 respectively. The per-centage of mortality to attack was 20 as compared with 47 in the previous year, and with 31 among the men. Simple continued fever caused 70 admissions and one death. Five cases of cholera occurred, one at Calcutta, Chunar, Meean Meer, Cawnpore, and Campbellpore respectively, the first three being fatal. Malarial fevers caused 220 admissions, equal to a ratio of 120·3 per 1,000, which is lower than that in the previous year by 8·3, and is only about a third of that among men. The cases treated were 9 of remittent fever, 2 returned as malarial cachexia and the remainder ague. Five cases of puerperal septicæmia are returned, with fatal result in 3 cases. Debility was the cause of 442 admissions and 2 deaths. There were 22 admissions for rheumatism, 3 being cases of rheumatic fever; tubercular diseases caused 6 admissions and 2 deaths, and there were 50 admissions for anæmia, also with 2 deaths. Among local diseases nervous affections caused 35 admissions, of which 10 were due to hysteria, 10 to neuralgia, and 6 to epilepsy; three deaths occurred, two from apoplexy and one from meningitis. Ophthalmic affections caused 29 admissions, nearly all cases of conjunctivitis. Diseases of the circulatory system show only 17 admissions, but there were 5 deaths, two from valve disease, and one from fatty degeneration, syncope, and phlegmasia dolens respectively. Respiratory diseases caused 43 admissions, three fourths of which were bronchitic affections, and there was one death from pneumonia. Diseases of the digestive system caused 223 admissions and 4 deaths; the admission ratio, 122·0 per 1,000, is lower by 7·7 than in the previous year. The principal causes of admission were dyspepsia 79 cases, and diarrhœa 57 cases. Hepatic diseases caused 21 admissions. The deaths were three from diarrhœa and one from ascites. Diseases of the generative system caused 148 admissions, the ratio being 81·0 per 1,000, a decline of 4·4 from the preceding year; the admissions were for a various number of diseases, and 47 were due to abortion or premature labour. One death occurred from metritis. In the remaining orders of diseases there was but little sickness, and there were few admissions for injuries, but one death occurred from heat apoplexy.

Children.—The average strength of children was 3,554, the number of admissions was 1,997, and there were 187 deaths. The admission ratio was, therefore, 561·9 and the death rate 52·62 per 1,000, being higher than the corresponding ratios in the preceding year by 64·5 and 5·37 per 1,000 respectively. Eruptive fevers caused 219 admissions, among them were 9 cases of small-pox, six of which occurred at Murree and 3 in Jullundur; all of them recovered. Measles was very prevalent, 174 cases being recorded, equal to an admission ratio of 48·9 per 1,000 as compared with 25·4 in the previous year. The greatest incidence of the disease was at Ranikhet, 49 cases being returned; there were also 32 cases at Mooltan, 29 at Roorkee, 18 at Campbellpore, &c.; 7 deaths occurred from this disease. There were also 2 cases of scarlet fever and 8 of epidemic rose rash. Enteric fever caused 24 admissions and 3 deaths, being in the ratios of 6·7 and ·84 per 1,000 as compared with 3·3 and ·55 in the preceding year, and considerably below similar ratios among the men. Five of the cases occurred at Campbellpore, 4 at Ranikhet, 2 fatal, 3 at Umballa, 2 at Murree, 2 at Rawal Pindi, 1 fatal, and the remainder single cases at various stations. Simple continued fevers caused 134 admissions and 3 deaths, and there was one case of cerebro-spinal fever. There were 8 attacks of cholera, three at Allahabad, two at Meerut, two at Rawal Pindi, and one at Lucknow; all were fatal except one case at Rawal Pindi. The admissions for dysentery numbered 37, and there were 3 deaths. Malarial diseases were the

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cause of 270 admissions and 6 deaths, equal to ratios of 76·0, and 1·69 per 1,000, as compared with 67·1 and 1·38 respectively in the preceding year; 16 of the cases and 4 of the deaths were due to remittent fever; one case was returned as malarial cachexia, and the remainder, both of admissions and deaths, were due to ague. There was a single admission for septic disease, a fatal case of erysipelas. Among developmental diseases 133 cases of debility are returned with 12 deaths, and 17 cases of immaturity at birth, with 16 deaths. Rheumatism and tubercular affections caused but little sickness, but there were 8 deaths from the latter cause. Among local diseases nervous affections caused 53 admissions, 35 being cases of convulsions with 31 deaths; there were also 3 deaths from meningitis, 2 from hydrocephalus, and one from epilepsy. 185 admissions are shown for ophthalmic affections, nearly all being cases of conjunctivitis. Diseases of the circulatory system were represented by a single fatal case of cyanosis, but respiratory affections were very numerous, 254 cases, of which all but 28 were bronchitic affections, among them there were 19 deaths; there were also 5 deaths from pneumonia and 4 from croup. Diseases of the digestive system caused 439 admissions and 49 deaths, being in the ratios of 123·5 and 13·79 per 1,000 as compared with 111·9 and 12·16 respectively in the preceding year. The principal causes of admission were diarrhœa, 220 cases with 27 deaths, and teething 126 cases and 18 deaths; 2 deaths are also returned for convulsions, one from gastritis, and one from jaundice. The remaining orders of local diseases caused very little sickness, except cutaneous diseases, for which there were 64 admissions. Under the head of poisons one admission for poisoning by sulphuric acid and 3 for poisoning by dead animal matter are returned. Injuries caused 41 admissions of varied character. The remaining deaths comprised 3 from burns or scalds, and one from asphyxia and multiple injury respectively. *Bengal.*

SANITARY CONDITIONS.—In his annual report Surgeon-General C. D. Madden, Principal Medical Officer, refers to the satisfactory state of the general health of the troops during the year as evidenced by the statistics of sickness and mortality already given.

During the year 13,701 men, 695 women, and 1,508 children were quartered in the hills in the hot weather; and standing camps, each accommodating 400 young soldiers, were established at Chakrata, Dalhousie, and Ranikhet, as in the year previous.

The sanitary conditions of the barracks and their immediate surroundings were generally good; no known cause of disease existed, and the causes of enteric fever, which is now so widespread, and is so fruitful a cause of mortality and inefficiency, are believed rarely to be found in or about the men's dwellings, but rather in the insanitary bazars and places to which the men resort.

The establishment of regimental institutes was effected during the year; these will be very beneficial to the soldier in providing him with greater comfort and amusement, and in enabling him to cultivate habits of temperance and sobriety.

With a view of teaching men to cook their meals instead of being dependent on the services of native cooks, it has been arranged that during each cold season a certain number of men in each company should be formed into a class for instruction in preparing and cooking rations, prizes being awarded to the most proficient.

The question of supplying a malt liquor of less alcoholic strength was not settled, but arrangements were being made with the principal brewers which it was hoped would lead to a beer not much exceeding in strength that in use at home being issued in future.

The following are the chief remarks of Principal Medical Officers of districts on the health and sanitary condition of the different divisions and stations in the Command throughout the year.

Presidency District.—The health of the troops was good, and there was no epidemic, although cholera was very prevalent among the native population of Calcutta. The sanitary condition of Hastings, a thickly populated locality in the vicinity of Fort William, was much improved. The houses and back yards were drained, cesspools removed, and sewers connected with the main drainage system of Calcutta. The station of Dum Dum is surrounded by

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villages which are overcrowded and under no sort of sanitary control. The Sudder bazar is also overcrowded. These grave defects were brought to notice. For the first six months of the year the water supply was drawn from the Digla tank, but as on analysis it was found to be impure, water from the Pulta main, which supplies Calcutta, was substituted. In other respects the sanitary conditions were satisfactory, except that the surface drainage is imperfect, but very difficult of improvement owing to the level nature of the ground. At Barrackpore the sanitary condition of the cantonment was satisfactory. Part of the roof and woodwork of the hospital having been destroyed by fire, the building was reconstructed and much improved, and separate wards were made for special cases, prisoners, and orderlies. The sanitary condition of the barracks at Darjeeling and their surroundings was satisfactory.

Allahabad Division.—The general health of the troops was good, but malarial fevers caused much inefficiency, especially in the autumn; cholera was very prevalent among the civil population, and affected the military in four out of the five stations occupied. The general sanitary condition of all the cantonments was good, and minor defects occurring from time to time were promptly brought to notice and remedied. At Cawnpore, by the extension of the grass farm, the planting of trees, and attention to surface drainage, a great improvement is said to have taken place in the station. In the hospital improvements were carried out; a day room for convalescents was fitted up and comfortably furnished; the hospital garden was enlarged and improved, and a vinery and orchard added. At Fort Chunar the sanitary conditions were good, but the health of the troops was indifferent. At Benares certain sanitary defects were brought to notice, the chief among them being general want of repair of the buildings, defective surface drainage, and deficient ablution arrangements in the hospital. At Dinapore the buildings termed temporary barracks are, it is said, defective in construction and badly placed, and when cholera visits the station it almost invariably appears in them first. The cookhouses and latrines are in too close proximity to the buildings. A well in the artillery lines was closed owing to the water being found to be impure. The drains and culverts in the Sudder bazar are in bad condition. Recommendations were made to have all defects remedied, and with the exception above noted the sanitary condition of the station was good.

Oudh Division.—The general health of troops was fairly good, the sickness was in excess in some corps owing to recent returns from Burma, where the men's health deteriorated. The conservancy of the several stations was good and carefully attended to. The Lucknow garrison was fairly healthy. Cholera prevailed universally on all sides of the station, a very large number of deaths having been reported in the North West Provinces. Eleven Europeans of the garrison, including one child, were attacked, and it speaks well for the sanitary condition of the cantonment that so few cases occurred. The new military prison occupies an open site, and the sanitary arrangements are excellent, certain improvements having been carried out, among which were improvement of the ventilation, hard-labour sheds, a new well sunk within the prison precincts, a bathing tank built, provision for opening the cell windows formerly closed, and removal of an absorption well from the vicinity of the hospital. At Sitapur strict attention was paid to sanitary matters, and no recommendations of any importance were necessary. Fyzabad, owing to its being so near the River Gogra, the water of which floods the cantonment and neighbourhood during the monsoon months, is never likely to be a very healthy place for European troops. The surface drainage is in many parts very faulty, and large holes favourable to the lodgment of water are to be found close to the men's dwellings. The sick rate was high, but that was in some measure due to the arrival from Burma of a regiment the men of which were in bad health from the fatigues and hardships of field service.

Rohilcund District.—General health of the troops was fairly satisfactory, but there was increased prevalence of ague and diarrhœa, and a large amount of inefficiency from venereal diseases. The whole of the stations in the plains of Rohilcund are extremely flat, and surface drainage has in consequence been difficult to carry out. The district around Shahjehanpur is only partially reclaimed, and is very malarious, large jheels being found in many parts. The

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climate during the year was unusually trying, the hot season was long and severe, the rains commenced late and were followed by close damp weather, which proved unhealthy and exhausting. At Bareilly the sanitary state of the barracks and cantonment was satisfactory and the health of the troops good, though venereal affections were very prevalent. At Moradabad sanitation was in most respects satisfactory. Alterations and improvements were made in the "Cutcherry" barracks with a view of remedying defects in ventilation but without much success; and it was under consideration whether it would not be necessary to abandon the building as unsuitable as a habitation for troops. At Naini Tal the health of the convalescents was not nearly so satisfactory as in the previous year, owing to the number of men who arrived in bad health from illness contracted during the Burma campaign. The sanitary condition of the barracks at Chaubuttia was satisfactory, as also that of the standing camp, and of the station at Ranikhet; the general health of the men was good. A new source of water from the "Chipra" spring, yielding an abundant and pure supply, was brought into use with very beneficial results. *Bengal.*

Saugor District.—The health conditions at the several stations were good. The rainfall as compared with that in the previous year was excessive and very unevenly distributed; the health of troops was good, except at Saugor on account of the prevalence of malarial fevers. Jubbulpore, on the other hand, had but slight prevalence of these affections; the barracks are in good sanitary condition, but those of the infantry are built on rather a low site; the water supply is derived from a reservoir about five miles from the cantonment; it is abundant, of excellent quality, and is conducted in pipes to the barracks. At Saugor, with exception that the hospital proved too small, necessitating the use of tents, no sanitary defect was brought to notice; and at Nowgong the sanitary condition of the station and buildings were satisfactory. At Pachmarhi there was a remarkable diminution in the prevalence of malarial fevers as compared with the previous year. The garrison of the place was partly composed of young soldiers in order that a comparison might be made between the health of these and of a draft stationed at Jubbulpore with a view of ascertaining if Pachmarhi would be suitable for a regiment new to the country, but the statistics were not sufficient for any definite conclusions to be arrived at. It is, however, believed that the place is more suited for the maintenance of health than for its recovery when lost. The sanitary condition of the buildings is reported to be good. Steps were taken to thin the forest in the immediate neighbourhood of the station, and for the removal of the accumulation of dead leaves, which were a fruitful source of malaria.

Gwalior District.—Owing to the high temperature which prevailed during the hot season and the heavy rainfall during the monsoon there was a comparative increase in the amount of sickness due chiefly to ague. At Jhansi the buildings were in a good sanitary condition. The position of the fort is not a good one owing to its being enclosed on all sides by a large native city. Five new barracks were in course of construction to contain 230 non-commissioned officers and men, also a block to contain nine married quarters. The barracks are of concrete with corrugated iron roofs and iron ceilings. There will be a layer of charcoal covered with sand over each ceiling, and ample space between the roof and the ceiling to admit of free ventilation. Each barrack room contains two large wards in which the men will sleep, and a large dining hall between, besides non-commissioned officers' rooms at either end. In the sleeping wards the superficial area per man is 90 square feet, and the cubic space 2,160 cubic feet. There are open verandahs 12 feet deep, with tiled roof, on the east, and closed verandahs, with terraced roof, on the west of each barrack. The floors of the rooms and verandahs, which are two feet and a half above the ground, are flagged and are ventilated by passages underneath. From the above it will be seen that these barracks will be remarkably good. At Sipri the sanitary condition of the barracks and their surroundings was satisfactory. It is thought that the chief cause of malarial sickness is a marsh situated at a short distance from the barracks, but the Principal Medical Officer is under the impression that, however objectionable this may be, malaria is due to a far more general and widespread cause.

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Meerut Division.—The general health of the troops was good; the diminution in sickness being in a great measure due to the decreased prevalence of malarial sickness and venereal diseases. At Meerut the sanitary condition of the barracks and cantonment was excellent. The health of the troops was improved as compared with the previous year, but the sick rate was above that of the average of the Command. It is stated that at Agra the sanitary condition of the cantonment and fort was excellent, and the health of the troops, as a whole, was good. At Fatehgarh no complaints were made of any sanitary defects existing, and the health of the detachment was very satisfactory. At Muttra two new half-troop barracks were occupied and were found to be in every way suitable. The general sanitary condition of the station was satisfactory. The health of the troops in the fort at Delhi was seriously affected by malarial fever, and an experiment was made by moving some of the more sickly to Hindoo Rao's house on the ridge, but they had become so much debilitated by constant attacks of fever that but little benefit resulted. The cause of this unhealthiness is the large expanse of ground which is submerged during the monsoon, and which gives off malarial emanations when exposed to the sun as the waters recede. The proposed remedy, viz., to divert the channel of the Jumna, might not be successful, and its cost is prohibitive. The latest suggestion is to build barracks in the civil lines and quarter in them as many men as could be spared from the fort. The sanitary arrangements within the fort itself are in every way satisfactory. At Landour the sanitary condition of the barracks and cantonment was satisfactory. Detachments of men who had suffered from malarial fever in the plains were sent up to this depôt in November with a view of testing the bracing effects of a hill climate. The experiment was not a success, and many of the men, who were in too weak a condition to resist the cold, had to be sent back to the plains. The number of men at Chakrata in the hot season was largely increased and their health was good. It is thought that this hill station is one of the best in the Command. Its sanitary conditions are very satisfactory, and there is an abundant and pure water supply.

Sirhind Division.—The Principal Medical Officer of the district reports that no serious sanitary defects were noticed anywhere, and that the condition of the barracks and cantonments generally has been satisfactory and calculated to preserve the health of the men. At Umballa the health of the troops was improved, malarial fevers were less severe. Excepting the annual repairs and the re-roofing of some of the barrack bungalows, no work was carried out. The old catch-pit system for the disposal of refuse water from bath rooms was re-established in the cavalry and artillery lines. At Jullundur the health of the troops was better than in the preceding year, and there was almost a total absence of serious fevers of the enteric or remittent type. At Kasauli the sanitary condition of the buildings and their surroundings was good, and the health of the men sent up for the summer months was far better than in the previous year. At Subathu early in the year the system for the disposal of the excreta from the barracks was found to be faulty, the site being too near the men's dwellings; representations were made, and a fresh site at a greater distance from cantonments was selected. With this exception sanitation was very satisfactory. At Solon verandahs were added to the front of the men's huts during the year and were of much benefit. Concrete floors were laid down in all of the huts, and ridge ventilation was provided for some of them. The chief sanitary objection to this station is its proximity to the Solon bazar, which is in native territory and is in a highly insanitary condition. Several representations, it is said, have been made on this subject but without effect.

Lahore Division.—It is stated that the temperature and rainfall of the autumn months were excessive at all stations in the division, with the exception of Ferozepore and Mooltan, and were no doubt the causes of increased sickness at Meean Meer, Fort Lahore, Amritsar, &c. It was not until the autumn that these stations became unhealthy, when intermittent fever of a severe type became epidemic. At Meean Meer the sanitary condition of the different barracks and hospitals, and also of the vicinity of the station, was satisfactory; but the surface drainage is defective, owing to the configuration of the ground. The general sanitary condition of Fort Lahore was good, and none but minor defects were reported. At Ferozepore the health of the

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garrison was excellent, and the sanitary state of the barracks and those surroundings was good. A deficiency of cell and guard-room accommodation existed, but was brought to notice. Of Mooltan it is stated that the sanitary conditions under which men live are excellent. The large defensive earthwork, situated about five furlongs to the south-west of the station, was completed. The lock-up room at the infantry quarter guard was lengthened considerably with advantage, but it is said that it is still hardly sufficiently large. At Amritsar the sanitation of the cantonment is satisfactory, and there is an excellent system of disposing of refuse water; but the neighbouring country is extremely flat and extensively irrigated. The hospital was unequal to the demands on it, and during the autumn tents were used in addition, and afterwards a barrack room was temporarily appropriated as a hospital. At Fort Govindgarh great room exists for sanitary improvement, and its position, construction, and arrangements are defective from a sanitary point of view. The condition of the ditch which surrounds the fort cannot fail to be detrimental to the health of those who live in its proximity. At Bhagsu and Dalhousie the health of the troops was good, and the sanitary condition of the stations satisfactory. *Bengal.*

Rawal Pindi Division.—With the exception of the prevalence of malarial fever during the latter months of the year, due to the drying up of the ground and the variations of temperature at that season, the general health of the troops at Rawal Pindi was good. The sanitary condition of the station was satisfactory; and a scheme for supplying the cantonment with water from a reservoir has been sanctioned. At Fort Attock the health of the troops was better than in the previous year; the detachments of artillery and infantry are relieved every three months. No sanitary defect in the station or its vicinity was reported. At Sialkot also health was improved as compared with that in the preceding year; there was no special prevalence of fevers, and the sanitary condition of the barracks and of the vicinity of the station was excellent. At Campbellpore the general health was fairly good, and there was an absence of epidemic disease. The sanitary arrangements of the cantonment and also of its vicinity were satisfactorily reported on. At Murree and the stations in the Gullies the health of the troops was good. There was no great prevalence of any disease, but enteric fever occurred at all the stations except two. With the exception of Kuldunna and Gharial, where almost entire regiments were quartered, these stations were occupied by small detachments of troops. The men are quartered in tents and huts, no permanent structures having yet been built. In all the stations sanitation was satisfactory and carefully attended to. No serious defect was brought to notice.

Peshawar District.—It is reported that the health of the troops in the district was tolerably good. The comparatively small rainfall, the abundant and excellent water supply, and the means adopted for restricting unlimited irrigation had a great effect in lessening disease. The barracks at Peshawar itself are being gradually improved year by year, and the completed buildings are in every way suited for the purpose intended. A new building was constructed as a hospital for soldiers' wives and children. The prevailing disease was malarial fever, which it is believed was partially attributable to the length of time the two battalions of infantry had been in the valley; the men's constitutions being weakened and unable to bear the great variations of temperature. At Nowshera the health of the troops was good, and the sanitary condition of the barracks satisfactory. The principal cause of admission was simple continued fever, malarial fevers being comparatively infrequent. At Cherat about 1,200 men, from the regiments in the valley, were quartered from May to October. It was originally intended to send back to their stations in July those who went up at the commencement of the season, replacing them by others, but owing to the occurrence of cholera at Peshawar this could only be carried out as far as Nowshera was concerned. One barrack room and four huts were completed during the year, tents having been used for the greater part of the men. The general health was good, but enteric fever was again prevalent. Every care was taken as regards sanitary arrangements, and no cause for disease could be found within station limits.

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Bengal.

Quetta District.—The general health of the troops was much improved as compared with the previous year. There was a marked decrease in the sickness from enteric and malarial fevers, dysentery, and scurvy. This satisfactory condition was said to be due in a measure to the small rainfall that occurred during the year. Excepting the detachments at Surakulla and Shanghan, seven miles from Quetta, no men were sent away from the station during the year, the sanitaria previously occupied having been abandoned on account of the difficulties of the ground and the insufficient protection afforded by tents in such a climate. Sanitation was carefully attended to, and several improvements were carried out during the year. The reservoirs for the lavatories were enlarged, and the tinning of the cooking vessels improved. One recreation room is already in use, and a large building to contain a garrison gymnasium, reading room, and theatre was about to be erected. The hospital was still incomplete, but will eventually consist of eight blocks for thirty beds each, one for twenty-two, and one for fourteen beds, making 276 beds in all. At the time of report six blocks were complete, accommodating 172 patients.

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II.—MADRAS.

Madras.

The average strength of warrant officers, non-commissioned officers, and men serving in the Madras Command was 11,738, being in excess of the number in the preceding year by 539.

In the subjoined table will be found the most important of the health statistics of this force during the year:—

1887. Average Strength.	Admissions.	Deaths			Invalids		Average daily Sick.	Ratios per 1,000 of Strength.				
		In the Command.	Of Invalids.	Total.	Sent Home.	Finally discharged.		Admissions.	Deaths.	Invalids sent Home.	Invalids finally discharged.	Constantly Sick.
11,738	14,574	152	10	162	364	157	906·82	1241·6	13·80	31·01	13·37	77·26

Compared with the results for the preceding year a decline is observed in both sickness and mortality, the admission ratio being lower by 124·2, the death rate by 2·80, and the constantly sick rate by 3·42 per 1,000; but compared with corresponding average ratios for the previous 10 years there is an increase of 31·6 in the ratio of admission and one of 14·53 in that of constant inefficiency through sickness, but there is a fractional decline in the ratio of mortality. The average sick time to each soldier was 28·20 days, and the average duration of each case of sickness was 22·71 days, the former being shorter than the corresponding period in the previous year by 1·25 days, but longer than the similar average decennial period by 5·30 days, while the latter is longer in both comparisons by 1·15 and 3·79 days respectively.

The loss to the Command by death and invaliding to England was 516 men, and the total loss to the service by death and final discharge as medically unfit for service was 319, equal to a ratio of 27·18 per 1,000 as compared with 31·69 in the previous year.

A return taken from the report of the Principal Medical Officer, Surgeon General Sir James Hanbury, K.C.B., is given in Abstract XXII., and shows the average strength, admissions, deaths, &c. in the different stations and circles of administration in the Command. The highest admission rate in any circle was 1542·1 per 1,000 in the Eastern district, the next being 1466·0 in the British Burma division (this does not include Upper Burma, where the troops were on active service); the lowest ratio of admission was 1005·5 in the Bangalore division, the next above being 1134·9 in the Hyderabad Subsidiary Force. Mortality also was highest in the Eastern district, the ratio being 18·56 per 1,000, the next ratio being 12·82 in the Nagpore Force; the lowest ratios were 9·26 and 11·38 in the Bangalore and Southern districts. The statistics of the Southern and Bangalore districts are not quite comparable with results in the preceding year, as Belgaum, which was formerly in the Western district, is transferred to the Bangalore division, and the remaining stations in the old Western district now, with the addition of Wellington, form the new Southern district. Of the other districts it is observed that there was a marked decrease in the ratios both of admission and mortality in the Burma division, equal to 420·6 and 22·69 respectively. In the Eastern district there was also a considerable decrease in these ratios, and to some extent also in the Hyderabad Subsidiary Force, but in the Nagpore Force the ratios of admission and mortality were both somewhat increased.

The highest ratio of admission in any station was 2520·2 per 1,000 at Thayetmyo, but the medical officer in charge states that the station itself was very healthy, and the sickness from dysentery, fevers, diarrhœa, and other

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Madras. diseases was greatly increased by the sick from moveable columns on field service in Upper Burma. As would be expected from the foregoing, the sick rate is considerably in excess of that of the average of the previous 10 years. The next highest admission ratio was 1625·8 per 1,000 at Cannanore, and this is considerably above the average rate as well as the rate in the preceding year; malarial and simple continued fevers increased the sick rate. The third ratio was 1593·2 in Madras and Pallaveram, a little above the rate in the preceding year, but a good deal above the average rate. Of this station also it is reported that the health of the garrison itself was very good, and that the high sick rate was due to troops from field service in Burma. The lowest admission rate, 798·2 per 1,000, occurred in Bangalore. This station gave the lowest rate also in the previous year, though not so low as in the year under report; both were a good deal below the average rate. Port Blair also gave a low ratio, 825·8, the next above being 1068·5 in Belgaum; the former is somewhat below, but the latter about the same as the average rate. The highest mortality rate was 35·97 per 1,000; this occurred at Malliapooram, and was dependent on five deaths, one of them accidental, in a small average strength. It is, of course, considerably above the average rate, and in the previous year there was no death at this station. The next highest mortality rates were 20·90 at Madras and 18·69 at Thayetmyo, both these ratios were affected to some extent by troops from field service, and both were above the average, though considerably lower than corresponding ratios in the previous year. The lowest mortality, exclusive of *nil* in a small detachment, was 4·54 per 1,000 at Toungoo; this is much below the average rate and that in the previous year. At Wellington, also, there was a small death rate, 6·22, those at Cannanore and Bellary, 6·45 and 6·47 respectively, being also low and below average rates. At the convalescent depôts the ratios of sickness and mortality are of course high; those at Poonamallee, 2786·9 and 76·50 per 1,000, being a good deal above those at Wellington; this was also the case in the previous year.

In Abstract XLI. will be found a table, taken from the report of the Principal Medical Officer, showing the more important statistics of sickness and mortality of the different arms of the service and of the several corps which served in the Command during the year. In the cavalry the ratio of admission was 1048·2 per 1,000, which is slightly below, by 9·0, the corresponding rate in the previous year; the death rate, 14·46, has increased by 3·96, and the constantly sick rate by 5·25. The average sick time to each soldier, 25·34 days, and the average duration of each case of sickness, 24·18 days, were longer than in the preceding year by 1·92 and 2·02 days respectively. The cavalry regiment showing the highest ratio of admission, 1208·2 per 1,000, was the 7th Hussars, quartered at Secunderabad; the highest mortality and constantly sick rates, 19·67 and 81·97 respectively, occurred in the same regiment. The annual admission ratio in the 12th Lancers, quartered at Bangalore for 9½ months when it left for England, was 835·5 per 1,000, the death rate 7·71, and the constantly sick rate 53·98. In the artillery the admission ratio was 1187·7, the death rate 11·76, and the constantly sick rate 66·49 per 1,000, each of which is lower than the corresponding ratio in the previous year, the admission rate by 124·9, death rate by 1·50, and the constantly sick rate by 1·72. The average sick time to each soldier was 24·27 days, being shorter by rather over half a day than the corresponding period in the preceding year; and the average duration of each case of sickness was 20·43 days, being longer by about a day and a half. Taking batteries whose average annual strength was over 100 men, it is observed that the highest ratio of admission was 1669·8 per 1,000 in No. 6 Battery, 1st Brigade, Southern division, quartered at Rangoon, the next was 1562·5 in P Battery, 1st Brigade, quartered at St. Thomas's Mount, and then 1434·0 in G Battery, 2nd Brigade, stationed at Bellary; the lowest admission rate was 781·5 in M Battery, B Brigade, at Bangalore, the next above being 830·2 in M Battery, 2nd Brigade, also at Bangalore for the greater part of the year. The mortality rate was highest in P Battery, 1st Brigade, 20·83 per 1,000, next in R Battery, 1st Brigade, at Belgaum, 20·55, and next in M Battery, B Brigade, 19·86; the lowest death rate was *nil* in No. 6 Battery, 1st Brigade, Southern division, the next above being 6·17 in I Battery, 3rd Brigade, at Secunderabad, and then 6·29 in G Battery, 2nd Brigade, at Bellary. The highest ratio of constant

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inefficiency was 84·91 per 1,000 in No. 6 Battery, 1st Brigade, Southern division, next 84·84 in H Battery, B Brigade, followed by 83·33 in P Battery, 1st Brigade; the lowest ratio was 50·31 in M Battery, 2nd Brigade, the next above being 51·28 in the U Battery, 1st Brigade, at Kamptee. *Madras.*

In the infantry the admission ratio was 1248·7 per 1,000, the mortality rate 11·09, and the ratio of constant inefficiency 76·96; these also are lower than corresponding ratios in the preceding year, the admission ratio by 127·4, the death rate by 5·42, and the constantly sick rate by 4·80. The average sick time to each soldier was 28·09 days, and the average duration of each case of sickness 22·50 days, the former being shorter than the corresponding period in the preceding year by 1¾ days, and the latter longer by rather under a day. Among individual regiments whose average annual strength was over 100 the highest ratio of admission was 1738·6 per 1,000 in the 2nd Battalion, South Wales Borderers, stationed at Thayetmo, with a wing at Toungoo, the next being 1612·4 in the 2nd Battalion, Bedfordshire Regiment, quartered at Bellary with a wing at Fort George, and the third, 1361·3, in the 2nd Battalion, Middlesex Regiment, part of the year at Secunderabad and the remainder at Kamptee and Seetabuldee; the lowest annual admission ratio was 814·8 in the 1st Battalion, Cheshire Regiment, at Rangoon, but this regiment was only a few weeks in the country; the next above was 829·0 in the 2nd Battalion, Oxfordshire Light Infantry, quartered at Bangalore, followed by 996·5 in the 1st Battalion, Hampshire Regiment, at Secunderabad. The highest mortality rate was 18·90 per 1,000 in the 2nd Battalion, Hampshire Regiment, partly on field service and partly in Secunderabad, next came 13·06 in the 2nd Battalion, Middlesex Regiment, and then 12·25 in the 2nd Battalion, Royal Fusiliers, at Wellington; the lowest death rate was 2·01 in the 2nd Battalion Bedfordshire Regiment, the next being 7·06 in the 1st Battalion, Hampshire Regiment, and 8·52 in the 2nd Battalion, South Wales Borderers. The highest ratio of constant inefficiency was 112·22 in the 2nd Battalion, South Wales Borderers, followed by 99·40 in the 2nd Battalion, Bedfordshire Regiment, and 86·86 in the 2nd Battalion, Royal Fusiliers; the lowest ratio was 27·78 in the 1st Battalion, Cheshire Regiment, then 48·87 in the 2nd Battalion, Oxfordshire Light Infantry, the next above being 56·47 in the 1st Battalion, Hampshire Regiment, and 68·55 in the 2nd Battalion, Middlesex Regiment.

In the following table the influence of age and of length of service in the country on sickness and mortality among the troops in the Command are shown as far as possible by calculations based on figures taken from the annual returns.

TABLE showing the Influence of Age on the Sickness, Mortality, and Invaliding among the Troops in the Madras Command during the year 1887.

Ages.	Average Strength.	Admissions.	Deaths in Command.	Invaliding.	Ratios per 1,000 of Strength.		
					Admissions.	Deaths.	Invaliding.
Under 20 years - -	534	396	1	6	467·9	1·87	1·12
From 20 to 24 years -	5,844	8,357	64	180	1430·0	10·95	30·80
„ 25 „ 29 „ -	3,292	4,235	56	103	1286·4	17·01	31·29
„ 30 „ 34 „ -	1,174	1,019	21	43	867·9	17·88	36·62
„ 35 „ 39 „ -	563	364	8	26	648·0	14·21	46·18
Over 40 years - -	162	127	2	6	783·9	12·34	37·03
Not stated - - -	169	76	—	—	—	—	—
Total - -	11,738	14,574	152	364	1241·6	12·95	31·01

It will be noticed that the highest ratio of admissions was among men between 20 and 25 years of age, 1430·0 per 1,000, and that after this there was

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Madras.

a decrease in the rate for each quinquennial period until 40 years of age was reached, when again there was slight rise. The ratio of sickness among men under 20 years of age was low. In the preceding year also the results were very similar to this, except that the rate of sickness between 20 and 25 years was higher, and the decline through the two succeeding quinquennia more marked. Mortality did not follow the same course as in the previous year, for whereas in that year the highest mortality ratio was among men between 35 and 40, and next among those between 20 and 25 years of age, in the year under report the highest ratio was among men between 30 and 35, the next below, between 25 and 30, differing but little from the former.

TABLE showing the Influence of Length of Service in the Country on the Sickness, Mortality, and Invaliding among the Troops in the Madras Command during the year 1887.

Length of Service.	Average Strength.	Admissions.	Deaths.	Invaliding.	Ratios per 1,000 of Strength.		
					Admissions.	Deaths.	Invaliding.
Under 1 year - -	2,004	2,443	32	41	1219·1	15·97	20·46
From 1 to 2 years -	2,998	3,718	39	65	1240·1	13·01	21·68
„ 2 „ 3 „ -	1,455	1,968	9	55	1352·6	6·18	37·80
„ 3 „ 4 „ -	1,340	1,956	17	48	1459·7	12·68	35·82
„ 4 „ 5 „ -	1,082	1,433	9	45	1324·4	8·32	41·59
„ 5 „ 10 „ -	2,210	2,500	42	85	1131·2	19·00	38·46
10 years and upwards -	480	480	4	25	1000·0	8·33	52·08
Not stated - -	169	76	—	—	—	—	—
Total service -	11,738	14,574	152	364	1241·6	12·95	31·01

This table shows that in the year under report there was most sickness in the fourth year of service in the country. Next in the third, then in the fifth, followed by the earlier years; the differences between the ratios are, however, not great; after 5 years the ratio further declined. In the preceding year the highest admission ratios were in the second and third years' service in the country. The mortality ratios vary a good deal, the highest having been among men between five and ten years' service in the country; next among men under one year's service, and then among men in their second year, and the lowest ratio was among men in their third year of service. There is but little similarity between these results and those of the preceding year.

In Abstract XXI. are shown the admissions and deaths in the different groups and orders of diseases, and in Abstract XXIII. the relative prevalence of sickness and mortality from them in each of the administrative circles. These tables are taken from the report of the Principal Medical Officer.

GENERAL DISEASES.—*Diseases dependent on Morbid Poisons.*—The admissions for *eruptive fevers* were 7 in number, and comprised 5 cases of epidemic rose rash, one of measles, and one of cow-pox. The first-named cases occurred at Bangalore, where the disease had been prevalent in the preceding year. There was no case of small-pox during the year.

Enteric Fever caused 144 admissions and 35 deaths, being in the ratios of 12·3 and 2·98 per 1,000 respectively. Compared with the corresponding ratios in the preceding year there is scarcely any difference in the ratio of admissions, but there is a decline of ·95 in that of mortality; but compared with average ratios for the preceding five years the admission rate is increased by 3·4, and the death rate by ·44. The per-centage of mortality to attack was 24·3, as compared with 31·6 in the previous year. In Abstract XXIV. is a table taken from the report of the Principal Medical Officer which shows the stations in the Command at which the admissions and deaths from enteric fever took place in each quarter of the year. It will be seen that, as usual,

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the greatest prevalence and mortality, 87 cases and 20 deaths, took place in the third quarter of the year. There was no great difference between the remaining three quarters of the year, as the fourth quarter showed 20 cases, the second 19, and the first 18. In the first quarter there were 7 deaths, and in each of the other two were 4 deaths. The cases were scattered over nine stations, and one case occurred among troops marching. As in the previous year, more than half the total number of cases occurred at Secunderabad, 91 cases, 16 of which were fatal. The great majority of the admissions for enteric fever at this station were from the 7th Hussars, which regiment had recently arrived from England, and in which there was a large proportion of young men; the barrack and latrine accommodation was also reported to be defective. Of the cases, 61 with 8 deaths were treated in the North Station hospital, 26 with 6 deaths in the South Station hospital, and 4 cases with 2 deaths in the Central Station hospital. All the cases except 12 occurred in men under 25 years of age, and 23 of the cases were in men under one year's service in the country, 29 in men in their second year's service, 19 in men in their third year, and 20 in men over three years' service in the country. The per-centage of mortality to attack was 17·6. At Bangalore there were 31 cases and 11 deaths, indicating that the attacks were of a more severe character than those at Secunderabad, the mortality to attack being equal to 36 per cent.; 27 of the cases were treated at the North Station hospital, of these 7 were fatal. With regard to age all but four of the men attacked were under 25 years of age, and with regard to service 28 of the men attacked were under two years' service in the country. The cause of the disease could not be definitely traced, but the medical officers agree in thinking that the men do not contract the disease in barracks, but outside in the bazars of villages, where they are exposed to bad sanitary conditions, and drink bad water, mixed or otherwise. The sanitary conditions of the barracks and their surroundings were good. At Bellary there were 8 cases of enteric fever and 3 deaths. It is stated that three were imported cases and five were contracted in Bellary or the immediate neighbourhood. The disease could not be traced to any sanitary defect. Some of the men are believed to have contracted the disease whilst out shooting in the jungles; probably by drinking impure water, &c. The cases which recovered were all of a mild type. At Kamptee there were 6 cases and 2 deaths. In one of the cases the disease is believed to have been contracted at Secunderabad, as the man was admitted immediately after his arrival at Kamptee from the former station. Concerning the remaining cases the medical officer states that he can only attribute the cause of the disease to the neglect by the men to use the dry earth in the latrines properly, as no other probable cause could be detected. At Rangoon there were 2 cases and one death; a strict investigation was held at the occurrence of each case, but no clue was obtained to the origin of either. At Malliapooram there were also 2 cases and one death; both cases occurred in young men very recently arrived in the country, and both lived in the same barrack-room; it is said that they had been drinking bazar-made ginger beer, and that one of them had been known to drink, some time before, water from a road-side well. There was one fatal case at St. Thomas's Mount, in a young soldier, recently arrived, and there were single cases at Wellington and Belgaum, and also one case contracted on the line of march from Belgaum to Bangalore. *Madras.*

Other Continued Fevers.—The admissions for these numbered 708, and there was one death. The rate of admission was 60·3 per 1,000, that of death ·08, and that of constantly sick 2·88. Compared with corresponding rates in the preceding year there is a decrease of as much as 51·9 in the admission rate, and one of 2·69 in the ratio of constant inefficiency; and compared with average similar ratios for the preceding five years there was a decrease of 12·1 in the former and an increase of ·15 in the latter. Of the different administrative circles that of the Hyderabad Subsidiary Force showed the greatest prevalence, 106·4 per 1,000, and the next was 83·0 in the Eastern district. The least prevalence was in the Nagpore Force, the ratio being 32·0, and the next in British Burma, 34·8. In the preceding year the two highest ratios and the two lowest were the same districts as in the year under report, but of the two highest the relative positions were changed. Compared with these ratios those of the Hyderabad Force and Eastern district are lower by 75·8 and 210·1 respectively; that of British Burma is lower by 33·2, but that of Nagpore

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Madras.

higher by 26·4. The ratios in the Southern district and Bangalore division were 37·5 and 50·5; these, however, are not quite comparable with those with which they correspond on account of the changes in the stations included in the respective circles.

Cholera.—There were 8 cases of cholera during the year, 7 admissions into hospital, 6 of which proved fatal, and one fatal case out of hospital. Four admissions occurred at Secunderabad during an epidemic of the disease at that station, Hyderabad, and the neighbouring villages, in the month of July. At Kamptee there were two cases, one in August, which proved fatal, out of hospital; and the other in July, which recovered; the cause of this was unknown, and there was no cholera in the vicinity. There was one fatal case in Bangalore in September, the man was attacked in the neighbouring district, and there was one case in March admitted at Thayetmyo from a steamer passing down the river; this case also proved fatal.

Dysentery.—The admissions numbered 729, and the deaths 11, being in the ratios of 62·1 and ·94 per 1,000. Compared with results for the preceding year a decrease of 6·7 has occurred in the admission rate, and one of 1·74 in the death rate. In Abstract XXVII. is a table taken from the report of the Principal Medical Officer which shows the prevalence and mortality due to dysentery in each quarter of the year. This shows that the greatest prevalence of dysentery was in the third quarter of the year, the ratio being 17·52 per 1,000; the next was 16·31 in the fourth. In the preceding year also the third and fourth quarters showed the greatest prevalence, but the least was in the first quarter, while in the year under report the least was in the second quarter. Mortality was highest in the first quarter, ·27 per 1,000, just below in the third quarter, ·25, followed by the two remaining quarters each with ·17. These results, both in numbers and in point of season, differ considerably from those in the preceding year. The greatest prevalence of dysentery in any circle was in the Hyderabad Subsidiary Force, the ratio being 108·6 per 1,000, an increase of 53·3 on the ratio for the preceding year. The admissions at Secunderabad were 309 in number, or more than two fifths of the total number, but no death occurred in this station. The next highest admission ratio was 63·5 per 1,000 in Burma, which is a considerable decline, by 52·8, from the previous year's rate; the death ratio, 1·11, has also greatly declined by 5·29. The lowest rate of prevalence was in the Nagpore Force, as was also the case in the preceding year, the ratio being 18·1; the death ratio was *nil* in either year; next above comes the Eastern district with an admission ratio of 24·0, a decline of 12·7; the death rate, 3·28, shows a decline of 3·87. The intermediate admission ratios in the Bangalore division and Southern district were 41·2 and 50·0 respectively, and in the former case there was a death rate of ·79, but in the latter there was no mortality.

Other diseases of this first sub-group caused 24 admissions, equal to a ratio of 2·0 per 1,000, as compared with 1·4 in the previous year; there was no death. 18 of the admissions were for epidemic diarrhœa, and all occurred at Trimulgherry, Secunderabad, in July and August; it is stated that "some "of them were very severe, resembling cholera, and as cholera had been "amongst the native population in the vicinity about that time, an outbreak "of cholera amongst the troops seemed imminent, every precautionary "measure was adopted, and sanitation of barracks, &c. received extra atten-"tion. A good many milder cases were treated in barracks." The remaining "admissions under this heading were 5 for mumps and one for influenza.

Malarial Fevers.—1,632 admissions and 5 deaths are recorded, being in the ratio of 139·0 and ·43 per 1,000, being lower than the corresponding ratios in the preceding year by 1·5 and ·28 respectively, but above the similar average quinquennial ratios by 38·3 and ·12. The ratio of constant inefficiency for these fevers, 5·44 per 1,000, is below the previous year's rate by ·43, but above the average rate by 1·89. Of the admissions 52 were cases of remittent fever, 2 were returned as malarial cachexia, and the remainder as ague. The deaths were all due to remittent fever. The greatest prevalence of malarial fevers in any circle was in the Nagpore Force, the ratio being 379·2 per 1,000, which is higher than the corresponding ratio in the preceding year by 101·9; the next highest ratio of prevalence was 262·6 in British Burma, but this rate shows a considerable decrease, one of 187·4; the third ratio was 135·4 in the Southern district; the lowest ratio was 44·8 in the Eastern district, a marked decrease,

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equal to 61·4; the ratio next above being 45·6 in the Hyderabad Subsidiary Force, which is above the corresponding ratio in the preceding year by 8·9. The admission rate for the depôts was 468·1 per 1,000, a considerable increase. *Madras.*

Septic Diseases were represented by 6 cases of erysipelas, one of which, at Bangalore, terminated fatally.

The next sub-group shows the sickness from syphilis and gonorrhœa, and it is observed that *primary syphilis* was the cause of 918 admissions, equal to a ratio of 78·2 per 1,000, which is lower than the corresponding ratio in the preceding year by 18·1. If the sickness caused by simple venereal ulcers be taken into account, it is found that there were 1,159 admissions from this cause, equal to a ratio of 98·7; this added to the rate for primary syphilis makes a total ratio for primary venereal sores of 176·9 per 1,000, which is higher than the similar ratio in the previous year by 32·9, and than the average rate for the preceding five years by 59·1. The ratio of constantly sick for primary syphilis only was 6·55 per 1,000 as compared with 7·96 in the preceding year; but with the rate for simple venereal ulcers added a ratio of 13·28 is obtained for primary venereal sores, which is higher than that in the previous year by 2·33 and than the corresponding quinquennial average rate by 4·25.

Secondary syphilis caused 384 admissions and one death. The admission ratio was 32·7 and the constantly sick ratio 3·89 per 1,000; the former was lower than that in the previous year by 1·1, but the latter higher by ·96. Compared with average corresponding ratios for the previous five years the ratio of admission is increased by 7·9, and that of constant inefficiency from this disease by 1·57 per 1,000.

Gonorrhœa was the cause of 1,652 admissions, being in the rate of 140·7 per 1,000, which is lower by 12·0 than the corresponding rate in the preceding year, but slightly above, by 4·5, the average rate for five years. The ratio of constant inefficiency, 10·22, shows a decline of ·31 from the previous year, and an increase of ·81 over the average rate.

Taking all forms of venereal affection together, the total admission ratio amounted to 350·3 per 1,000, which is greater by 19·8 than the previous year's rate, and by 71·5 than the average rate for five years. The total ratio of constant inefficiency from these diseases was 27·39 per 1,000, which is an increase of 2·98 over the last year's rate, and one of 6·63 over the average rate.

The prevalence of venereal diseases varied considerably in different districts. Primary syphilis (excluding simple venereal ulcers) were most prevalent in British Burma, the ratio amounting to 147·6 per 1,000, the next ratio was 100·1 in the Southern district; on the other hand, the ratio in the Nagpore Force was as low as 6·4 per 1,000, the next above being 43·2 in the Hyderabad Subsidiary Force. Compared with the previous year the British Burma division shows an increase and also the Hyderabad Force, but the Nagpore Force and the Eastern district show a decrease of admission rate. The Bangalore division and Southern district results are not quite comparable with those of the districts with which they correspond in the previous year on account of the alterations in the station composing the districts, but the first-named gave a ratio of admission of 92·3, while in 1886 the same division, without Belgaum but including Wellington, gave a ratio of 174·6. It is stated that the high ratio in the newly-formed Southern district was, to a great extent, due to the lock hospital at Cannanore having been closed during the year. The highest rate of prevalence of secondary syphilis occurred in the Southern district, and reached 106·9 per 1,000. The Principal Medical Officer states that this excessive ratio is to be attributed to the 7th Royal Fusiliers having contracted syphilis at Cannanore during the experimental closure of the lock hospital. He quotes the remarks of the medical officer in charge, station hospital, Wellington, regarding this regiment, that the great majority of the men bore traces of constitutional syphilis, and the cases treated in hospital were of an obstinate character. The next highest ratio of prevalence was 29·2 in the Hyderabad Force; the lowest ratios were 9·6 in the Nagpore Force and 9·8 in the Eastern district. Gonorrhœa was most prevalent in the Eastern district, 224·0, and next in the Nagpore Force, 164·5; the least prevalence was 120·5 in the British Burma division, and next, 127·2, in the Bangalore division. Taking these three forms of disease together, by far the highest ratio of prevalence was in the Southern division, 360·6, the next being 288·0 in the British Burma;

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Madras. the lowest ratio was 181·0 in the Nagpore Force, followed by 218·6 in the Hyderabad Subsidiary Force. As in the previous year, the ratio of prevalence in the depôts was high, 373·5, owing to the number of cases of secondary syphilis treated.

In the next group of diseases *parasitic* affections caused 51 admissions, or 4·3 per 1,000 as compared with 2·9 in the preceding year. Of the admissions 36 were cases of tænia solium, the greater part occurring either at Bellary or Secunderabad. *Scurvy* only caused two admissions, but 187 are returned for *alcoholism*, 7 of which were cases of delirium tremens. The admission ratio was 15·9 per 1,000, an increase of 3·5 over the previous year's rate. There was no death.

The admissions for *debility* were 327, the ratio being 27·9 per 1,000, but slightly below the rate in the previous year, and above the average rate. Exclusive of the depôts the highest admission ratio for debility was 49·7 in the British Burma division, the next being 44·8 in the Eastern district; the lowest rate was 6·4 in the Nagpore Force.

In the succeeding group of diseases 295 admissions are shown for *rheumatism*, being in the rate of 25·1 per 1,000, which is lower than the rate in the preceding year by 6·5, and is also below the average rate for the previous five years. Rheumatic affections were most prevalent in the Eastern and Burma divisions, the ratios being 35·0 and 33·7 per 1,000 respectively; Nagpore gave by far the lowest ratio of prevalence, 3·2, the next above being 20·4 in the Hyderabad Force. Out of the total number of admissions there were 12 cases of rheumatic fever, one of which proved fatal.

Tubercular Diseases caused 40 admissions and 13 deaths, including 6 of invalids. The admission and mortality ratios were 3·4 and 1·11 as compared with 4·8 and ·62 per 1,000 respectively in the preceding year. All the admissions but two and all the deaths, including those of invalids, were due to tubercular disease of the lungs. Tubercular diseases were most prevalent in the Southern division, the ratio being 5·7 per 1,000 in the Eastern division, and in the Nagpore Force the ratios were 3·2 respectively, and the lowest ratios were 1·6 in the Bangalore division and 1·1 in Burma. At the depôts the admission rate was higher owing to the sufferers being sent up to them for treatment.

Other diseases of this group caused 103 admissions, or 8·8 per 1,000, slightly less than in the previous year. Three fourths of the cases were non-malignant growths, chiefly papilloma, and among the remainder were two of purpura, two of diabetes, and severeal of anæmia. Four deaths occurred, including 2 of invalids, and are returned as cancer 2 cases, and purpura and anæmia one case respectively.

Local Diseases.—*Diseases of the Nervous System* caused 142 admissions and 4 deaths, being in the ratios of 12·1 and ·34 per 1,000, which are below the corresponding ratios in the previous year by 1·4 and ·37 respectively. The ratios in both years are below the average rates of former years, particularly in the case of mortality. This is in great measure due to the recent changes in the nomenclature of diseases, which removed the sickness and mortality from sun-stroke and heat apoplexy from this order of diseases to another. Of the cases treated, 16 were mental affections, or 1·4 per 1,000, as compared with 2·0 in the previous year. The greatest prevalence of nervous diseases in any district was in British Burma, where the ratio was 21·5 per 1,000 which, however, is lower than the corresponding rate in the previous year by 7·0; the next ratio of prevalence was 20·8 in the Eastern district, an increase of 12·6; the lowest ratio was in the Bangalore division, 7·4, the next above being 7·7 in the Hyderabad Force. The principal causes of admission for nervous diseases, besides those for mental affection, were neuralgia, 74 cases, paralysis, 13, and epilepsy, 12 cases. Two of the deaths were due to meningitis, one to abscess of the brain, and one is returned from hemiplegia.

Diseases of the Eye.—The admission ratio was 13·6 per 1,000, being lower than in the previous year by 1·5, and also below the average rate for the preceding five years. Ophthalmic affections were most prevalent in the Eastern district, the ratio being 21·9, which differs but very slightly from the previous year's rate, which was also in that year the highest in any district. The lowest ratios were 5·7 in the Southern district and 7·5 in the Nagpore Force, both of these ratios show a considerable decline. Two thirds of the total number of

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admissions were cases of conjunctivitis, after which the most frequent cause of admission was iritis. *Madras.*

Disease of other Organs of Special Sense gave an admission ratio of 13·2 per 1,000, identical with that of the preceding year, but rather below the average rate. There were 10 admissions for nasal affections, and 145 for aural diseases, of which 123 were cases of inflammation of the external meatus.

Diseases of the Circulatory System caused 118 admissions and 3 deaths, equal to ratios of 10·1 and ·26 per 1,000 respectively, which are lower than the corresponding ratios in the previous year by ·8 and ·45 and also below the similar average rates. The greatest prevalence of these affections occurred in the Eastern district, giving a ratio of 24·0, an increase of 14·8 from the previous year; the next ratio was 16·0 in Burma, also an increase; the lowest ratio was 3·2 in the Hyderabad Force, the next above being 5·3 in the Nagpore circle, the former having declined by 5·7 and the latter increased by 1·9 as compared with corresponding results in the previous year. As usual, more than half the admissions were cases of palpitation, and next to this, the principal cause of admission was valvular disease of the heart, 28 cases. The deaths were due to fatty degeneration of the heart, dilatation of the heart, and valvular disease one case respectively.

Diseases of the Respiratory System.—The admissions numbered 324, and there were 9 deaths. The admission rate, 27·6 per 1,000, was lower than in the previous year by 4·2 and below the average rate; while the death rate was above the average, but differed very slightly from the last year's rate. The greatest local prevalence of respiratory diseases was 38·7 in the Southern district, followed by 29·3 in Burma, which, however, is considerably less than in the preceding year. The lowest rate was 16·0 in the Nagpore Force, which is double the last year's rate, next above comes 20·9 in the Bangalore division. Bronchitis alone caused 231 of the admissions, and among the remainder were 26 for asthma, 20 for pneumonia, and 22 for pleurisy. The deaths are returned as 5 for pneumonia, 2 for abscess of the lung, one for pleurisy, and one for hæmoptysis.

Diseases of the Digestive System.—The admissions amounted to 1,852 in number and the deaths to 38; the admission and mortality ratios were 157·8 and 3·24 per 1,000, the former being lower by 29·8, but the latter higher by ·20 as compared with corresponding ratios in the preceding year. Compared with average ratios there is also a decrease in admission rate, but an increase in mortality. The highest ratio of prevalence of digestive disorders in any circle was 229·8 in the Southern district, followed by 209·8 in the Eastern district, which is lower by 41·5 than in the previous year; the lowest ratio, 87·6, occurred, as it did in the foregoing year, in the Nagpore circle, the next above being 105·0 in the Bangalore division. Mortality was highest in the Eastern division, the ratio being 6·56, an increase of 2·47; next comes 3·41 in the Southern district; the lowest ratio of mortality was *nil* in the Nagpore circle, and then 1·32 in the Bangalore division. The ratio of sickness in the depôts was 375·9, about the same as in the previous year; but the mortality ratio, 26·00, is much increased. The principal causes of admission were diarrhœa, 418 cases; dyspepsia, 382; affections of the mouth and throat, 332; and hepatic affections, 460 cases, including 14 cases of abscess of the liver, and 31 of jaundice. The deaths were caused by hepatitis in 22 cases, and abscess of the liver in 15 cases; the death of an invalid after having left the Command was from abscess of the liver.

The prevalence of dysentery, diarrhœa, and hepatitis in each of the divisions in the Command during the year is shown in a table in Abstract XXVI., and the prevalence of, and mortality from, these diseases in each quarter of the year is given in a table in Abstract XXVII. The results with regard to dysentery have already been spoken of, and it will now be observed that the greatest prevalence of diarrhœa was in the Eastern district, the ratio being 64·7 per 1,000, which, however, is lower than in the preceding year; the next ratio was 53·1 in the Hyderabad Subsidiary Force, also a decrease; the lowest ratio was, as before, found in the Nagpore Force; a very marked decrease is noticed in the ratio for Burma, 34·3 as compared with 100·6 in 1886. The greatest seasonal prevalence was in the first quarter of the year, then in the third, followed by the second, and lastly in the fourth quarter; this sequence does not correspond with that in the preceding year. The total

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Madras. admission ratio for diarrhœa was 35·6 per 1,000 as compared with 58·0 in 1886.

Hepatitis and abscess of the liver caused ratios of admission and mortality of 27·3 and 3·15 per 1,000, as compared with 28·6 and 2·41 in the previous year. The highest admission ratio in any district was 47·4 in the Southern district, followed by 43·7 in Burma, which is almost identical with that in the foregoing year; the lowest ratio was 11·75 in the Nagpore Force, a slight increase, followed by 14·3 in the Bangalore division. Mortality was highest in the Eastern district, as in the foregoing year, the ratio reaching 11·8; the next was 6·3 in the Southern district; in the Nagpore Force there was no mortality, and in the Bangalore division the ratio was 1·32. The ratios of prevalence in the four quarters of the year varied very little, the differences being only fractional, the highest ratio being 6·96 in the first quarter, and the lowest, 6·64, in the second quarter. Mortality was greatest in the second quarter, the ratio being ·83, and lowest ·10 in the last quarter of the year. In the preceding year the greatest mortality was in the third and fourth quarters, and the lowest was in the first quarter of the year.

Diseases of the Lymphatic and Glandular System caused an admission ratio of 38·7 per 1,000, which is below the rate in the previous year by 6·4, but is a little above the average rate. With regard to local prevalence the highest admission ratio occurred in Burma, 65·8 per 1,000, the rates in the Eastern and Nagpore circles, 61·2 and 62·0 respectively, being also high, but the last-named is considerably lower than in the previous year; the lowest ratio was 16·2, and occurred in the Hyderabad Force. Among the cases treated were 16 of splenic disease, the remainder being cases of inflammation or suppuration of lymphatic glands.

Diseases of the Urinary System were the cause of only 33 admissions, equal to a ratio of 2·8 per 1,000, which is lower than in the preceding year by ·7. The principal causes of admission were incontinence of urine, cystitis, and Bright's disease. From the last-named disease there were 3 deaths, and one is returned from rupture of the bladder.

Diseases of the Generative System caused an admission ratio of 123·3 per 1,000, as compared with 77·3 in the preceding year. This marked increase is due to the greater number of admission for simple venereal ulcer; four fifths of the total number of admissions being cases of this nature. The remainder of the admissions were principally due to orchitis, balanitis, and urethral stricture. The highest ratio of prevalence of these affections was 328·0 in the Nagpore Force, the next 233·9 in the Eastern district, while the lowest was 35·3 in the Southern district and 84·6 in Burma.

Diseases of the Organs of Locomotion gave an admission rate of 4·7 per 1,000, which is lower than in the previous year by ·7, and also below the average. Synovitis and periostitis were the chief causes of admission.

Diseases of the Connective Tissue.—The admission ratio, 19·6 per 1,000, is fractionally lower than in the preceding year, but above the average rate.

Diseases of the Cutaneous System.—The admissions, 909 in number, caused a ratio of 77·4 per 1,000, being a decline from the previous year's result of 12·1, and also somewhat below the average. Prevalence of these affections varied considerably in the different districts, the admission ratios in the Southern and Eastern districts being as much as 143·3 and 142·1, and in the Hyderabad Force and Bangalore division only 63·9 and 53·9 respectively. Boils, ulcers, and whitlows account for two thirds of the admissions, the remaining third being due to a very varied number of affections, of which the principal were scabies, eczema, and the different varieties of tinea.

Poisons.—As in the previous year, 8 admissions are recorded under this head, but no death. The admissions were one for poisonous fungi, and the rest for poisoned wounds, four by stinging insects, two by dead animal matter, and one by fish bite.

Injuries.—The admission ratio for injuries was 123·8 per 1,000, and the death rate 2·13, which are below the corresponding rates in the previous year by 10·8 and ·64 respectively, but are above the quinquennial average rates. General injuries caused 20 admissions and 14 deaths. The cases comprised 4 of burns or scalds, 9 of sunstroke, 3 of which proved fatal, 2 of apoplexy, both fatal, 3 cases of heatstroke, and 2 of multiple injury, with fatal result in one instance due to a fall from a horse. In addition to these there were 6

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deaths from drowning, all accidental, and 2 from asphyxia from plugging of air passages with foreign bodies, both of these cases happened to men while in a state of intoxication. Local injuries caused 1,433 admissions and 11 deaths. About five sixths of the admissions were as usual due to contusions, wounds, and sprains, and among the remainder were 19 for local burns and scalds, 17 for gunshot wounds, 55 for fractures, and 15 for dislocation. The deaths were as follows:—One from rupture of the pulmonary artery, due to a gunner having fallen from his horse, and the wheel of a gun-carriage having passed over him; one from contusion with rupture of viscera, resulting from a fall from a trapeze; three from fractures, a case of fracture of the skull from a fall down a precipice, a case of fracture of the base of the skull from a fall from a horse, and a case of fracture of the spine, the result of diving into too shallow water; the remaining six deaths were due to gunshot wound, one case was that of a man who was wounded by the accidental explosion of a comrade's gun while out shooting, two were homicidal, both men being shot at the same time by a man of the same regiment, and three were suicidal. Of the suicides it is stated that in one case the presumed cause was mental anxiety and intemperance, and in another disappointment in love, in both these cases a verdict of temporary insanity was recorded; in the third case the motive is said to have been fear of being incriminated in a case of supposed murder; the coroner's jury returned a verdict of suicide. *Madras.*

Among the surgical operations performed during the year was an amputation of the forearm on account of the bursting of a gun, and several minor amputations; extirpation of the eye-ball, on account of wound, was also performed, incision for hepatic abscess, ligature of the facial artery, and various other operations. In all of these successful results were obtained.

Invaliding.—The number of men invalided to England during the year was 364, being in the ratio of 31·01 per 1,000, which is higher than the corresponding rate in the preceding year by 7·17, but lower than the decennial average rate by 2·05. With regard to the amount of invalding from the different arms of the service, it will be seen on reference to Abstract XLI. that the ratio in the cavalry was 18·32 per 1,000, that in the artillery 25·33, and that in the infantry 24·21. Compared with corresponding ratios in the preceding year there is a decline of 8·52 observed in the cavalry ratio, but an increase of 6·86 in the artillery rate, and one of 4·48 in the infantry rate. Taking individual corps, the highest ratio in the cavalry was 30·85 in the 12th Lancers, stationed at Bangalore for nine months; the rate in the 7th Hussars at Secunderabad was only 11·48. In the artillery, taking batteries with an average annual strength of 100 and upwards, the highest ratio was 40·82 per 1,000 in S Battery, 1st Brigade, at Bellary; next 40·00 in D Battery, 1st Brigade, at Secunderabad, followed by 37·74 in No. 6 Battery, 1st Brigade, Southern Division, at Rangoon; the lowest ratio was 8·70 in No. 4 Battery, 1st Brigade, North Irish Division, at Fort St. George, the next above being 12·35, in T Battery, 3rd Brigade. In the infantry the highest invaliding ratio was 51·22 per 1,000, in the 2nd Battalion, Royal Fusiliers, at Wellington, and the next was 40·58, in the 2nd Battalion, Somersetshire Light Infantry, partly on field service and partly at Belgaum; the lowest rate was 8·73 in the 2nd Battalion, Oxfordshire Light Infantry, quartered at Bangalore; the next above being 10·59, in the 1st Battalion, Hampshire Regiment, at Secunderabad. With regard to the influence of age and service in the country on invaliding, it will be seen on reference to tables given on a previous page that among men under 20 years of age there was scarcely any invaliding, but among men between 20 and 25 years of age the ratio is equal to 30·80 per 1,000, this increases slightly in the next quinquennial period, still further in the following one, and reaches 46·18 among men between 35 and 40 years of age, after which it declined a little. In the preceding year a a similar increase with age was observed. The ratio of invaliding among men in their first year of service in the country was 20·46 per 1,000, this was slightly increased in men in their second year, and to a greater extent in men in their third year; in the fourth year there was slight decline, but in the fifth the rate was 41·59; the rate in the period from five to ten years was 38·46, but it declines among men of 10 years' service and upwards. There is no great similarity in these results as compared with those of the previous year. The principal causes of invaliding to England were dysentery, 44 cases, or

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Madras.

3·75 per 1,000, an increase on the previous year; secondary syphilis, 33 cases, or 2·81 per 1,000, as compared with ·62 in 1886; debility, 50 cases, or 4·26 per 1,000, as compared with 3·22; rheumatism and tubercular diseases each caused 19 cases of invaliding, or 1·62 per 1,000, which is a considerable increase in the former, but in the latter there is no material change; nervous diseases caused 27 cases, or 2·30 per 1,000, of which 1·19 was on account of mental affection alone; these ratios are lower than the similar ones in the preceding year; diseases of the circulatory system show 34 cases of invaliding, or 2·90 per 1,000, a slight decrease; diseases of the respiratory system, 15 cases, or 1·28 per 1,000, an increase on last year; diseases of the digestive system, 37 cases, or 3·15 per 1,000, an increase of 1·40; and injuries, 26 cases, or 2·21 per 1,000, as compared with ·62 in the previous year. The number of men finally discharged the service as medically unfit was 157, equal to a ratio of 13·37 per 1,000, which is below the corresponding rate in the previous year by 1·72, and below the decennial average rate by 1·85. The principal disabilities which rendered discharge by invaliding necessary were secondary syphilis, 6 cases, or ·51 per 1,000; debility, 13 cases, or 1·11 per 1,000, in the previous year the rate was 2·05; tubercular diseases, 16 cases, or 1·36 per 1,000, a slight decrease; diseases of the nervous system, 22 cases, or 1·88 per 1,000, which is only about half the rate in the previous year, most of the cases were mental affections; diseases of the circulatory system, 26 cases, or 2·21 per 1,000, an increase of ·69; and diseases of the digestive system, 19 cases, or 1·62 per 1,000, as compared with ·71 in the previous year.

Officers.—The average strength of officers during the year was 295, the attacks of illness are returned as 246, there were 3 deaths, and 29 officers were invalided to England. The ratio of prevalence of sickness was 833·8 per 1,000, which is considerably lower, by 124·2, than the corresponding rate in the previous year; the mortality rate was 10·16, a decline of ·33, and the invaliding rate was 98·30, a decrease of 3·10. Fevers caused a good many attacks of sickness, among them were 31 cases of simple continued fever, and 9 of enteric fever, of which 2 proved fatal. The ratio of prevalence of enteric fever, 30·5 per 1,000, is more than double that of non-commissioned officers and men. Malarial fevers caused 42 attacks, of which 4 were cases of remittent fever. There were also 4 attacks of dysentery, but no death. Diseases of the digestive system were the cause of 46 attacks of illness, of which 21 were cases of hepatic disease, and 15 diarrhœa. There was no great amount of sickness in any of the other orders of diseases, but 37 cases of injury are returned, chiefly contusions and wounds; there were 3 cases of fracture, 2 of concussion of the brain, and one of compression of the brain, the result of a fall from a horse, which proved fatal. The causes of invaliding were continued fevers, 5 cases, including 3 enteric fever, dysentery 1, malarial fevers 7, including 1 case of remittent fever, debility 7, hepatic affections 5, and vertigo, pneumonic phthisis, concussion of the brain, and fracture one case respectively.

Women.—The average strength is recorded as 856, and there were 858 admissions into hospital, and 15 deaths, being in the annual ratios of 1002·3 and 17·52 per 1,000 respectively. The sickness and mortality were a good deal higher than in the preceding year, the admission ratio being greater by 107·1, and the death ratio by 5·12. The returns exclude cases of ordinary child-birth. Among the cases treated were one case of small-pox, which recovered, and 4 cases of measles; simple continued fever caused 24 admissions, and enteric fever 4 admissions, of which 2 were fatal; in the previous year there was only one case, which recovered. Two cases of epidemic diarrhœa are returned and 13 of dysentery, one of which terminated fatally. Malarial fevers showed 65 attacks, 2 being remittent fever. Septic diseases were represented by one case of pyæmia, and one of puerperal septicæmia, both of which were fatal. Debility caused as many as 278 admissions and one death, and among other general diseases were 15 admissions for rheumatism, 9 for tubercular disease of the lungs with 2 deaths, and 2 for cancer with one death. Diseases of the nervous system caused 20 admissions, most of them being for neuralgia, and there was one fatal case of tetanus. Ophthalmic affections showed 36 cases, almost all cases of conjunctivitis. There were very few admissions for diseases of the circulatory system, but 45 for respiratory affec-

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tions, 39 of which were bronchitis; there was also one fatal case of hydrothorax. Disorders of the digestive system caused 184 admissions, of which 75 were for dyspepsia, 39 for diarrhœa, 25 for affections of the mouth and throat, and 17 for hepatic diseases. There were 3 deaths, one from hepatitis, one from peritonitis, and one from intestinal obstruction. There were only 3 admissions for diseases of the urinary system, but 2 of them were cases of Bright's disease, one of which was fatal. Diseases of the generative system caused 98 admissions but no death; the principal cause of admission was abortion, 19 cases of which are returned. *Madras.*

Children.—The average strength of children is recorded as 1,738, and the admissions and deaths among them were 1,487 and 94 respectively. These were more numerous than in the preceding year, and the admission rate, 855·6 per 1,000, shows an increase of 64·4, and the death rate, 54·09, one of 9·64. There were 112 admissions for eruptive fevers, of which three were cases of small-pox, which recovered, and 92 were cases of measles with 3 deaths. Simple continued fever caused 125 admissions and 3 deaths, and enteric fever 2 admissions and one death. There were 49 attacks of dysentery, 6 of which proved fatal, and malarial fevers caused 100 admissions, of which 23 with 6 deaths were cases of remittent fever; there was also one death from ague. Out of 27 admissions for whooping cough there were 2 fatal cases. Erysipelas was the cause of one fatal case, and there was one death out of three admissions for congenital syphilis. Four deaths are recorded from premature birth, and two from spina bifida out of five cases treated. The admissions for debility were 85 in number, and there were 12 deaths. Nine admissions for tubercular diseases are returned, and of these 6 proved fatal. Diseases of the nervous system were represented by 20 admissions, all but two being cases of infantile convulsions; of these 8 died. The admissions for conjunctivitis were 222 in number, 14 cases being of the purulent variety. Diseases of the respiratory system caused 293 admissions, all but 10 being cases of bronchitis; 6 deaths occurred, 2 from croup, 3 from bronchitis, and 1 from atelectasis. Diseases of the digestive system were the cause of 294 admissions, the principal being 167 for diarrhœa with 20 deaths, 55 for teething with 7 deaths, 35 for sore throat or tonsillitis, 12 for dyspepsia, and 7 for hepatic disease, with 2 deaths from jaundice. Inflammation of lympathic glands is returned as the cause of 2 deaths, and there was one death from nephritis. There was no great amount of sickness in the remaining orders of diseases except in diseases of the cutaneous system, for which 46 admissions are returned. There were also 32 admissions for injuries, including 10 cases of fracture, but no death occurred.

Sanitary Conditions.—The Principal Medical Officer reports that the health of the British troops in the Command during the year was on the whole fair, and there was less sickness and mortality than in the preceding year, but invaliding was considerably increased, owing chiefly to service in Upper Burmah. There was a marked immunity from small-pox, but a few cases of cholera occurred, as shown above, and enteric fever was about the same in prevalence as in the preceding year, but the mortality was appreciably less.

The following remarks are made with regard to the different administrative circles. A change took place in the arrangement of certain of the districts, the Belgaum district being transferred to the medical administration of the Bangalore division at the commencement of the year, while Trinchinopoly and Wellington, formerly included in this district, were removed to the Southern division.

Eastern District.—The general health of the troops was good, and the sanitary condition of the barracks is reported to have been satisfactory. It is stated that the recently converted artillery barrack at Fort St. George affords excellent accommodation. The senior medical officer of the station hospital, Madras, again calls attention to the unsatisfactory position of the hospital, owing to its proximity to the main road and to the River Cooum the water of which is often in an insanitary state; as a building, however, it is said to be well adapted for requirements, with the exception that some small wards are required for the treatment of special cases. The Deputy Surgeon-General reports that troops passing through Madras are usually encamped in tents on the glacis of the fort, which is unsatisfactory, as conservancy arrangements are difficult, and the place is in many ways unsuited for a camping ground; he, therefore,

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Madras.

again urges the advisability of provision of some shelter for such troops for temporary accommodation. It is reported that the water supplied to Fort St. George from the seven wells is indifferent in quality; that the main drain to the north of the fort gives off noxious smells at times, and that some of the latrines are badly constructed. Improvement is required in the kitchens used by the infantry, and the canteen is too small for requirements.

Bangalore Division, including Belgaum and Ceded Districts.—The general health of the troops in the division was good. The sanitary state of the barracks and buildings connected with them is reported as having been satisfactory Exception is taken to the Ulsoor barracks, as they are too close to the native bazar the sanitary state of which is often doubtful; they have also not sufficient basement. The sources of the Bangalore water supply are the Ulsoor tank, and the dhobie's wells adjoining, the water being pumped from them by steam power, and filtered before distribution by means of iron pipes to barracks, hospitals, &c. The Ulsoor tank source is reported as unsatisfactory, as the neighbourhood of the channels feeding it has been found to be contaminated by excreta and other filth, which is washed down into the tank by the first heavy rain of the south-west monsoon. It is stated that this water is very suspicious or bad in quality from the amount of organic matter it contains. Before use by the troops, in addition to the filtration it undergoes at the waterworks, it is boiled and again passed through Macnamara filters. The drainage of the barracks was satisfactory. At Bangalore a small drain was constructed during the year to carry off water from the artillery sergeants' mess, and the drain leading from the artillery married quarters at Agram was extended further into the country. The hospital accommodation was sufficient, and the sanitary arrangements connected therewith satisfactory, though the south station hospital was not so perfect in this respect as compared with the more recently constructed hospital. At Belgaum it is reported that there is great need for a prisoners' ward in the station hospital, no special room being available, the building originally set apart for this purpose having been appropriated for a clerk of the meteorological department. The water at Belgaum was good, but some of the wells ran dry during the hot weather, still the supply was sufficient for requirements.

Southern District.—The recently constituted Southern district embraces the stations of Wellington, Cannanore, Calicut, and Malliapooram. The health of the troops at Wellington and Calicut was good, at Cannanore bad, and at Malliapooram indifferent. The sanitary state of the barracks at these stations is reported as good; at Calicut and Malliapooram there was occasional overcrowding for short periods when troops were passing through, during the monsoon season, when tents could not be used. It is stated that at Cannanore there is a low-lying piece of ground about 800 yards to the east of the barracks into which the bazar and cantonment drainage empties itself, and, a portion only escaping by overflow into the sea, leaves, as evaporation proceeds, an ill-smelling plot of ground over which the wind blows at certain periods in the twenty-four hours direct towards the barracks. At Wellington improvements were being made by the removal of the slaughter-house from near the bakery to a more distant and suitable site, and by the enlargement of the canteen, which is close and ill ventilated. The gymnasium is said to require increased roof ventilation.

Hyderabad Subsidiary Force.—The general health of the troops in this division was indifferent. The barracks at Secunderabad are generally well built and situated, and all the buildings in connexion with them were kept in good repair. It is reported that some of the barracks are too much exposed to the force of the wind during the monsoon and they thus become draughty. There is also want of shade, but planting of trees is being carried on; they, however, take a considerable time to grow to any size. The accommodation of the cavalry barracks was defective owing to an incoming regiment being considerably stronger than the corps it relieved; this necessitated the utilization of the lower storeys, the recreation rooms, and gymnasium as dormitories, which was both inconvenient and prejudicial to health. As a remedial measure, tents were pitched during the warm weather, but new barracks are being constructed which will afford sufficient space for all requirements. Drainage is effected by means of open masonry drains and is assisted by the natural conformation of the ground; it is sufficient to carry off storm water if the hollows are filled up and care taken to secure a slope. The water supply was generally

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good and sufficient, and well protected from pollution; but the water in a few of the wells used by followers was found to be of indifferent quality. The three station hospitals were generally satisfactory, but it is said that the south, the largest, though a palatial-looking building, does not make a good hospital owing to the wards being draughty, while some of the offices are unsuitable. It is said that an officers' hospital is much required; a former hospital sergeants' quarters have been used for the purpose; a well-constructed hospital for women and children is also said to be desirable; the present building, which was converted to a hospital from married quarters, has been found defective in many ways, and inconvenience has resulted from want of a suitable ward for contagious diseases. A considerable number of improvements were effected in Secunderabad during the year. *Madras.*

Nagpore Force.—The general health of the troops was fairly good, and the sanitary condition of the barracks was satisfactory. No overcrowding took place. Plans for the construction of a military prison were submitted and were under consideration. The water supply was abundant and its quality was also well reported on. Food supplies were as a rule good and varied, but it is said that difficulty was encountered in preventing the milk from being watered. The canteens have been well provided; the beer and porter supplied from the Nilgiri brewery has been approved, but it is said that beer of a lighter quality would be better for the men. Several improvements were carried out during the year, amongst which were the re-modelling of certain cook and wash houses, and construction of corrugated iron-sided urinals for the infantry canteen at Kamptee.

British Burma Division.—The general health of the troops in this division is said to have been good. The barrack accommodation at Rangoon and Thayetmyo is reported to be excellent and suitable in every way to the climate. The buildings are airy, well ventilated, and cheerful, and the sanitation in connexion with them is carefully attended to. The barracks at Toungoo are older and inferior to those at the above-mentioned stations, but they are still fairly commodious. The drainage was is no instance found defective. The water supply was abundant, good, and carefully guarded from contamination. The supplies were of good quality, the diets good and varied, the meat of excellent quality, and European and native vegetables abundant. During the year the general hospital for British troops at Rangoon in connexion with the forces in Upper Burma was first reduced from 200 to 120 beds, and finally disestablished in November and in lieu of it 50 beds were added to the station hospital for the treatment of the sick from Upper Burma.

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Bombay.

III.—Bombay.

The average strength of warrant officers, non-commissioned officers, and men during the year was 11,283, being slightly greater than the strength in the preceding year. The most important of the statistics of sickness and mortality are shown in the following table :—

1887. Average Strength.	Admissions.	Deaths			Invalids		Average daily Sick.	Ratios per 1,000 of Strength.				
		In the Command.	Of Invalids.	Total.	Sent Home.	Finally discharged.		Admissions.	Deaths.	Invalids sent Home.	Invalids finally discharged.	Constantly Sick.
11,283	14,373	148	15	163	317	139	747·94	1273·9	14·45	28·10	12·32	66·30

Compared with corresponding results in the preceding year a decrease of 214·1 per 1,000 is observed in the ratio of admission, and one of 7·68 in that of constantly sick, but the mortality ratio is increased by 1·09; and compared with similar average ratios for the preceding ten years the decrease in admission rate is equal to 323·1 per 1,000, and there is also a decrease in the death rate equal to 2·68, but there is a fractional increase in the ratio of constant inefficiency through sickness.

The average sick time to each soldier was 24·19 days, which is shorter than in the preceding year by 2·81 days, but longer than the decennial average period by one third of a day. The average duration of each case of sickness was longer than in the previous year by rather under a day, and than in the average of ten years by 4·05 days.

The loss to the Command by death and invaliding was 465, and the total loss to the service by death and final discharge as medically unfit was 302 men, which is equal to a ratio of 26·76 per 1,000, an increase of 2·31 from the corresponding rate in the previous year.

With regard to the prevalence of sickness and mortality in the different circles of administration in the Command, the Principal Medical Officer, Surgeon-General W. A. Thompson, M.B., has given a table which is shown in Abstract XXIX. from which it is observed that the ratios of admission and mortality in the Bombay district were 1238·9 and 9·75 per 1,000, which are lower than the corresponding ratios in the preceding year by 185·8 and 3·72 respectively. In the Mhow district the admission rate was 1494·9, and the mortality rate 23·55, the former being lower than in the previous year by 287·5, and the latter higher by 8·81. It must be mentioned in connexion with the Bombay and Mhow districts that two stations, Ahmedabad and Deesa, were taken from the latter circle during the year and added to the former. In the Sind circle the ratio of admission was 1253·3 per 1,000, and the death rate 8·35, which are lower than the corresponding ratios in the preceding year by 385·6 and 7·68 respectively. In the Poona circle, also, the admission rate, 1112·6, shows a decrease, one of 122·2, but the death rate, 9·57, shows a fractional increase. The admission and mortality ratios at the Sanitaria were 2496·1 and 19·69 per 1,000 respectively, the former being greater by 375·3 and the latter by 7·19 than the corresponding ratios in the previous year.

The highest admission ratio in any station during the year was 2058·3 per 1,000 at Ahmedabad, this ratio is lower than the corresponding ratio in the preceding year by 112·2, but higher than the decennial average ratio by 144·1; the chief cause of sickness was climatic fever. The ratio of admission next in order was 2025·8 at Neemuch, which is above the rate in the

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previous year by 77·0, but lower than the average rate by 282·7; and the third highest ratio was 1931·5 at Indore, this also is below the average rate, but above the previous year's ratio. The lowest ratio of prevalence of sick was 775·3 per 1,000 at Deolali, this is not much more than half the corresponding rate in the previous year and considerably below the average; the ratio next above was 1016·4 in Poona, and is below the last year's rate by 224·7 and the decennial average rate by 493·1; the ratio of admission at Mhow is the next, 1052·8, the decrease in either comparison being much more marked, 670·0 and 805·2 respectively. *Bombay.*

The highest mortality rate in any station was 59·52 per 1,000 at Neemuch, the average rate being only 14·33, and the previous year's rate 6·15, this great increase was due to an outbreak of cholera. The next ratio, 55·56 at Indore, due to 6 deaths in a small average strength, is also considerably above the ratios in previous years; the third ratio was 18·02 at Ahmednagar, considerably higher than in the preceding year and above the average by 4·23, the increase was due to deaths from enteric fever and cholera. At Satara there was no mortality, and the lowest recorded ratio was 4·27 per 1,000 at Hyderabad as compared with 6·45 in the previous year, both being considerably lower than the average rate. Next above this comes Poona with 7·17, lower by 3·20 than in the preceding year, and by 3·61 than the average rate; the death rate at Deolali, 7·37, also shows a considerable decrease in either comparison.

Abstract XLII. gives a table taken from the report of the Principal Medical Officer which shows the most important of the statistics of sickness and mortality in the different arms of the service and also in the various regiments, batteries, or corps which served in the Command during the year. The cavalry was represented by a single regiment, the 7th Dragoon Guards, quartered at Mhow. The admission ratio 1043·9 and the constantly sick ratio 65·71 per 1,000 are lower than the corresponding ratios in the preceding year by 756·9 and 53·65 respectively, but the death rate, 16·89, shows an increase of 6·30. The average sick time to each soldier was 23·98 days, and the average duration of each case of sickness 22·98 days, being shorter than the corresponding periods in the preceding year, especially the former. The artillery with an average annual strength of 2,426 gave an admission rate of 1425·4, a death rate of 13·55, and a constantly sick rate of 74·65 per 1,000. Compared with results in the preceding year there is a decrease of 192·2 in the admission ratio, one of 1·10 in the mortality ratio, and one of 6·03 in the ratio of constant inefficiency through sickness. The average duration of each case of sickness, 27·35 days, was shorter than the corresponding period in the preceding year by 2·10 days, but the average duration of each case of sickness 19·11 was fractionally longer. Taking batteries whose average annual strength was over 100 men, the highest admission rate in any one battery was in D Battery, 2nd Brigade, quartered at Deesa, and was 2349·7 per 1,000; the next ratio was 2113·5 in G Battery, 3rd Brigade, at Neemuch, and the third 2094·8 in A Battery, 2nd Brigade, quartered at Aden the greater part of the year. The lowest ratio of prevalence was 913·9 in R Battery, 4th Brigade, quartered at Kirkee for 11 months of the year, the next above being 936·3 in G Battery, B Brigade, stationed at Mhow, and 1023·6 in F Battery, 1st Brigade, at Ahmednagar. Mortality was highest, 39·68 per 1,000, in E Battery, 1st Brigade, quartered at Neemuch, followed by G Battery, 3rd Brigade, with 35·46, and by B Battery, 2nd Brigade, at Nasirabad, with 28·04. There were 9 batteries in which there was no mortality, and among those with low ratios were E Battery, 2nd Brigade, chiefly at Kirkee, 6·47, F Battery, 1st Brigade, 7·87, and No. 5 Battery, 1st Brigade, North Irish Division, at Colaba, 8·77. The highest ratio of constantly sick was 110·64 per 1,000 in G Battery, 3rd Brigade, the next being 101·03 in E Battery, 1st Brigade, followed by 99·48 in A Battery, 2nd Brigade; the lowest ratio of constant inefficiency was 46·62 in R Battery, 4th Brigade, the next above being 59·16 in B Battery, 2nd Brigade, and 63·50 in G Battery, B Brigade. In the infantry the admission rate was 1301·3 per 1,000, the death 13·37, and the constantly sick rate 67·75; compared with corresponding results in the

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preceding year there is a decline of 195·6 in the admission rate, and one of 4·44 in the constantly sick rate, but the death rate is higher by 2·83. The average sick time to each soldier was 24·69 days, and the average duration of each case of sickness 18·97 days, the former being shorter by 1·62 days and the latter longer by 1·39 days than the corresponding periods in the preceding year. The highest ratio of admissions in any particular regiment was 2021·0 per 1,000 in the 2nd Battalion Lancashire Fusiliers quartered at Nasirabad, the next being 1346·8 in the 2nd Battalion East Yorkshire Regiment at Colaba, and the third, almost the same, 1346·5, in the 2nd Battalion Durham Light Infantry; the lowest admission ratio was 859·7 per 1,000 in the 2nd Battalion Royal Dublin Fusiliers at Poona, then 959·8 in the 2nd Battalion North Staffordshire Regiment at Aden, and 1111·7 in the 1st Battalion Worcestershire Regiment quartered a short time at Karachi. The highest mortality rate was 31·51 per 1,000 in the 2nd Lancashire Fusiliers, the next 19·21 in the 1st Battalion Loyal North Lancashire Regiment quartered at Mhow, and 15·33 in the 2nd Battalion Gloucestershire Regiment quartered at Ahmednagar; the lowest mortality rate was 5·31 in the Royal Dublin Fusiliers, then 7·51 in 2nd East Yorkshire Regiment, and 7·64 in the 2nd Durham Light Infantry; constant inefficiency was highest in the 1st Worcestershire Regiment, the ratio being 99·52, then in the 2nd Lancashire Fusiliers, 93·56, and in the 2nd Durham Light Infantry, 82·37; it was lowest in the 2nd North Staffordshire Regiment, 23·15, next in the 2nd East Yorkshire Regiment, and then in the 2nd Battalion King's Own Yorkshire Light Infantry quartered at Karachi the greater part of the year, the ratio being 58·48 per 1,000.

The influence of age and of length of service in the country on the sickness and mortality of the troops is shown as far as possible in the subjoined tables. Information is not available regarding a certain number of men, but the materials at hand give a sufficiently approximate idea.

TABLE showing the Influence of Age on the Sickness, Mortality, and Invaliding among the Troops in the Bombay Command during the year 1887.

Ages.	Average Strength.	Admissions.	Deaths.	Invaliding.	Ratios per 1,000 of Strength.		
					Admissions.	Death.	Invaliding.
Under 20 years - -	415	393	4	6	947·0	9·64	14·46
From 20 to 24 years -	5,376	7,951	81	154	1479·0	15·07	28·65
„ 25 „ 29 „ -	2,960	4,214	42	105	1423·6	14·19	35·47
„ 30 „ 34 „ -	1,042	1,265	11	25	1214·0	10·56	23·99
„ 35 „ 39 „ -	456	407	9	17	892·5	19·74	37·28
40 years and upwards -	116	113	1	10	974·1	8·62	86·21
Not stated - - -	918	30	—	—	—	—	—
Total - -	11,283	14,373	148	317	1273·9	13·12	28·10

It will be noticed that the highest ratio of admission was among men between 20 and 25 years of age, the ratio among those in the next quinquennium being but little lower; after this period the rate decreased rapidly; a similar decline was observed in the previous year. Mortality, which was low under 20 years of age, increased among men between 20 and 25 years of age, and then declined until the quinquennium 35 to 40 years, when it again increased; this course is also similar to that in the preceding year.

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TABLE showing the Influence of the Length of Service in the Country on the Sickness, Mortality, and Invaliding among the Troops in the Bombay Command in the year 1887. *Bombay.*

Years of Service.	Average Strength.	Admissions.	Deaths.	Invaliding.	Ratios per 1,000 of Strength.		
					Admissions.	Deaths.	Invaliding.
Under 1 year - -	2,560	3,785	46	47	1478·5	17·97	18·36
From 1 to 2 years -	2,307	3,087	36	95	1338·1	15·60	41·18
„ 2 „ 3 „ -	1,309	1,860	12	44	1388·6	9·17	33·61
„ 3 „ 4 „ -	1,364	1,916	19	49	1404·7	13·93	35·92
„ 4 „ 5 „ -	717	999	12	16	1393·3	16·74	22·31
„ 5 „ 10 „ -	1,779	2,426	19	54	1363·7	10·68	30·35
„ 10 years and upwards	331	268	4	12	809·7	12·08	36·25
Not stated - -	916	32	—	—	—	—	—
Total - -	11,283	14,373	148	317	1273·9	13·12	28·10

The highest admission ratio is observed to be in men under one year's service in the country, but the difference between this ratio and that of the next year of service is not so marked as it was in the previous year. The ratio increases again slightly in the third and fourth years of service, falling a little in the fifth, and still a little more in the period five to ten years. Mortality was, as in the previous year, highest in the first year of service in the country, falling in the second and third years' service, after which it rises again up to the fifth and then again declines.

The admissions, deaths, invaliding, and constantly sick in the different groups and orders of diseases are shown in Abstract XXVIII., and the relative prevalence of sickness and mortality from them in each of the administrative districts is given in the tables in Abstract XXX.

GENERAL DISEASES.—*Diseases dependent on Morbid Poisons.*—Under the head of *eruptive fevers* 5 admissions are returned, equal to a ratio of ·5 per 1,000, as compared with ·7 in the preceding year. The admissions comprised one for small-pox at Ahmedabad, which recovered, three cases of measles, and one of chicken-pox.

Enteric Fever was the cause of 127 admissions and 38 deaths, being in the ratios of 11·3 and 3·37 per 1,000 respectively. Compared with corresponding ratios in the preceding year there is a decline of ·9 in the rate of admission, and one of ·81 in that of mortality, but compared with average corresponding ratios for the previous five years there is an increase of 3·6 in admission rate, and one of ·96 in the mortality rate. The per-centage of mortality to attack declined from 34·0 in the previous year to 29·9. In Abstract No. XXXI. is a table, taken from the report of the Principal Medical Officer, showing the stations in his Command at which the admissions and deaths from enteric fever took place in each of the four quarters of the year. The greatest prevalence of the disease was in the second quarter of the year, when there were 46 cases, next in the third quarter, 38 cases, then in the fourth, 24 cases, and least in the first quarter, 19 cases. Mortality, however, was highest in the third quarter, when 16 deaths occurred; next in the second, 10 deaths, followed by the fourth, 9, and least in the first quarter, 3 deaths. It will be noticed that the influence of season, as hitherto observed, is not so apparent; the greatest number of cases occurred in the second quarter, and the disease appears to have prevailed more uniformly during the second and third quarters than in former years. This variation in the usual seasonal prevalence is said to have been due to the large number of cases at Mhow, where there was an outbreak in the second quarter in which 30 cases occurred. In comparing the different stations at which the disease has been observed with one another, and with reference to the number of cases occurring at each, the Principal

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Bombay. Medical Officer remarks that "considerable variation on former years is "noticed: thus, Karachi, Deesa, and Poona show a considerable decrease "in the number of admissions reported, while, on the other hand, Mhow "more than maintains its evil repute with the large number of 56 admissions; "at all other stations where enteric fever has been observed there has been "a decrease in the number of cases, except at Nasirabad, where there is an "increase of one, and at Ahmednagar where the increase amounts to seven. "The proportion of deaths to admissions is, however, greater at most stations "than in the preceding year, but Deesa, Mhow, and Nasirabad are notable "exceptions to this." Of the cases at Mhow, among which there were 13 deaths, it is said that the disease was fairly distributed over the various barracks except in one instance, where, out of a total of 16 cases from one regiment, 7 came from the upper story of one barrack, which was thought the best barrack in the lines. The Principal Medical Officer of the district remarked, "Could the prevalence of disease in special barrack-rooms be "accounted for by the men of these rooms frequenting the same places out "of barracks and so be subject to the same influence." He was, however, unable to discover that such was the case in the instance above alluded to. Out of the total number of cases 32 occurred in one regiment, and of these 29 were in men who had joined the previous trooping season. Of the whole number of cases observed in Mhow 43 occurred in men under one year and 9 in men under two years' residence in India. As regards the age of persons attacked, 46 were between the ages of 20 and 24 years, 3 were under 20, and 7 were between 25 and 29. At Nasirabad there were 21 admissions as compared with 20 in the previous year; only 2 of the cases were fatal. The disease prevailed more or less throughout the year, the greatest number of cases in any one month occurring in October, when six were recorded. The Principal Medical Officer of the district remarks that "it is a curious fact "that no case of enteric fever occurred at Neemuch; the headquarters of the "Lancashire Fusiliers stationed at Nasirabad gave 21 cases of the disease, "while three companies of the same regiment stationed at Neemuch did not "furnish a single case. The detachment was changed every three months, "so that it could not be said that the men were of superior physique." At Karachi there were 19 cases and 6 deaths. The admissions were distributed throughout the year, June and July being the only months in which no cases occurred. No defect in sanitation or any other cause for the disease could be discovered. Of the cases, 1 was under 20 years of age, 14 were between 20 and 24, and 4 between 25 and 30; and 16 of the men had been less than one year in India, and 2 others under two years. At Ahmednagar there were 12 cases and 7 deaths, more than double the number in the previous year. Six of the attacks and 5 of the deaths took place in July. At Poona there were 7 cases and 5 deaths. Of the cases, two were imported and one was contracted in the bazar. Of the remaining cases, three came from Ghorpuri and one from Wanowrie barracks, but the sanitary condition of the barracks was good and no special cause for the disease could be found. At Deesa a great decrease took place in the number of cases, the admissions having fallen to 6 with 1 death from 27 and 10 deaths in the previous year. The cases all occurred early in the year. At Kirkee there were 3 cases, fatal; all occurred in recent arrivals in the country. At Colaba 2 cases occurred, one of which was fatal, and at Hyderabad one case occurred; no local cause could be assigned for any of these cases.

Other Continued Fevers.—1,057 admissions and 2 deaths are recorded, being in the ratios of 93·7 and ·18 per 1,000 respectively. Compared with the results for the previous year there is a decline of 8·8 in admission rate, and one of ·09 in death rate; but compared with quinquennial average ratios there is an increase of 3·1 in the former and a decrease of ·13 in the latter. The ratio of constant inefficiency was 3·98 per 1,000, which is higher in both comparisons by ·31 and ·91 respectively. All the cases were simple continued fever, and the deaths occurred at Ahmednagar and Indore respectively. The highest ratio of prevalence of these fevers in any circle was 165·8 per 1,000 in the Bombay district, an increase of 48·4 on that in the preceding year. All the other districts show a decrease in the ratio of prevalence, that in the Poona circle 92·9, one of 7·5, that of Sind 87·0, one of 61·1, and that of Mhow 44·4,

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one of 51·5. In the Sanitaria, also, there was a reduction in prevalence of these fevers, the ratio having fallen from 116·6 to 55·5. *Bombay.*

Cholera.—The admissions for this disease numbered 39, and the deaths 28. The admission rate, 3·5, and the death rate, 2·48 per 1,000, exceed the corresponding ratios in the previous year by 3·1 and 2·12; but are lower than the average rates for the previous five years by ·6 and ·39 respectively. In Abstract XXXII. is a table showing the stations at which these admissions and deaths took place in each quarter of the year. It will be observed that with the exception of one case in the first quarter, and two fatal cases in the fourth quarter, all the cases and deaths occurred in the third quarter of the year. The Mhow and Poona districts were the only districts affected, principally the first-named, the cases, 33, and deaths, 23, being in the ratios of 11·1 and 7·74 per 1,000. At Neemuch there were 23 attacks and 17 deaths. The outbreak occurred in the month of August, and it is said that the disease was of a very malignant type and rapidly proved fatal. At Mhow there were 8 cases and 5 deaths. A short sharp outbreak of 7 cases with 4 deaths occurred at the end of August, and there was one sporadic case towards the end of October. The disease was general in the surrounding country and adjacent villages. At Kirkee there were two fatal cases, which occurred at the end of July; and at Ahmednagar there were also two fatal cases in July; the disease was prevalent in the vicinity of the station. At Poona there was a single fatal case of cholera in a man who had been absent from barracks for three days during a time when cholera was prevalent in the city. There was also a fatal case at Indore, the disease being prevalent in the vicinity. At Nasirabad there was a single case which recovered, and at Purandhar sanitarium also a single case which did well.

Dysentery was the cause of 244 admissions and 9 deaths, being in the ratios of 21·6 and ·97 per 1,000, the former being lower by 1·1 and the latter higher by ·33 than the corresponding rate in the previous year. In Abstract XXXIII. is a table in which the prevalence of dysentery is shown in each of the administrative divisions in the Command (including Sanitaria), and in Abstract XXXIV. is a table showing the prevalence of, and mortality from, this disease in each quarter of the year. In the Bombay district the ratio of admission was 29·3 and that of mortality ·72 per 1,000, as compared with 25·0 and ·96 in the preceding year. In the Sind district the admission and mortality rates, 39·0 and 1·39, have declined by 27·4 and 1·66. In the Poona circle the ratio of admission, 17·2, is increased by 1·0, and the mortality rate, ·53, compares with *nil* in the preceding year. In the Mhow circle the admission rate, 13·0, has declined by 2·0, but the death rate, 1·00, has risen by ·71. With regard to seasonal prevalence, it is observed that the highest admission rate, 6·9 per 1,000, was in the third quarter of the year; the next rate, in the fourth quarter, being lower by only ·9; in the first quarter the ratio was 4·8 and in the second quarter it was 4·0. The same sequence obtained in the preceding year. Mortality was ·27 in each of the first two quarters of the year, ·17 in the fourth and ·09 in the third.

In the second sub-group of the first group of diseases *malarial fevers* show 3,076 admissions and 8 deaths, being in the ratios of 272·6 and ·71 per 1,000 respectively, the former being lower than the corresponding rate in the previous year by 96·7 and the latter higher by ·62; but compared with the average ratios for the preceding five years the decrease in admission rate is equal to 139·1, and there is also a decrease in the mortality rate of ·15. The ratio of constant inefficiency from these fevers, 9·18 per 1,000, is lower than in the previous year by 1·89, and than the quinquennial average rate by 2·81. Of the total number of admissions 77 were cases of remittent fever, and the remainder ague. Of the deaths 2 were returned as ague, and 6 as remittent fever. The greatest prevalence of malarial fevers was in the Mhow circle, the admission ratio reaching 592·5 per 1,000, being higher than that in the preceding year by 108·8. In the Sind division the ratio of prevalence was 153·8, a considerable decline, 276·7, from the rate in the previous year. The Poona circle was only just below in admission rate, 149·0, and this shows a decrease of 136·4. The lowest ratio of prevalence was 101·3 in the Bombay division, less than half the corresponding ratio in the preceding year. Taking the Sanitaria by themselves, the admission rate, 960·6, shows an increase of 102·4.

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Bombay.

Septic diseases caused 10 admissions and 2 deaths; 9 were cases of erysipelas, and one of sloughing phagedœna; the latter was fatal as also one case of erysipelas.

In the sub-group of venereal diseases 933 admissions are recorded for *primary syphilis*, the ratio of admission, therefore, being 82·7 per 1,000, a decline of 25·3 has occurred. The ratio constantly sick, 6·57 per 1,000, is also lower by 1·65. If the sickness for simple venereal sores be taken into account the number of admissions, 359, would run up the admission ratio for primary venereal sores to 114·5, and the number constantly sick for this affection would bring up the ratio of inefficiency to 8·41. These ratios, however, are lower than the corresponding rates in the preceding year by 21·2 and 1·19, though higher than the similar average rates for the preceding five years by 23·1 and 1·89 respectively.

Secondary syphilis caused 376 admissions, the ratio being 33·3 per 1,000, which only differs from that in the preceding year by a very small fraction, though it is higher than the quinquennial average rate by 8·8. The ratio constantly sick, 3·41, is above the last year's rate by ·54 and above the average rate by 1·32.

Gonorrhœa was the cause of 1,574 admissions, equal to a ratio of 139·5 per 1,000, a decline of 12·2 from the ratio in 1886, but above the five years' average rate by 12. The constantly sick rate, 8·77, is lower by 1·22 than in the foregoing year, but fractionally above the average rate. Including all forms of venereal disease, the admission ratio, 287·3, and the ratio of constant inefficiency, 20·59 per 1,000, were lower than the corresponding ratios in the preceding year by 33·7 and 1·87, but above the similar quinquennial average rates by 43·9 and 3·77 respectively.

With regard to the prevalence of venereal disease in the different administrative circles, it will be seen from Abstract XXX. that primary syphilis (exclusive of simple venereal sores) was highest in the Poona circle, 113·7 per 1,000; the remaining three districts had much lower ratios, differing but little from one another, that of the Mhow circle being 68·3, that of Bombay 67·1, and that of Sind, 61·9. Secondary syphilis was highest in the Mhow circle, 36·3, followed by the Poona circle, 33·4; then the Sind division, 32·0; and, lastly, the Bombay district, 24·0. Gonorrhœa was most prevalent in the Poona circle, 162·4, and lowest in the Sind district, 107·2, the Bombay and Mhow districts being intermediate with 151·2 and 132·6 respectively. Taking all the foregoing forms of venereal disease together, the highest admission ratio was 309·5 in the Poona circle, followed by 242·3 in the Bombay district, next by 237·2 in the Mhow circle, and the lowest 201·1 was in the Sind district. Compared with corresponding results for the preceding year an increase of 81·3 is observed in the ratio for the Poona cirle, but a decrease of 25·1 in the Bombay district, one of 142·8 in the Mhow circle, and one of 169·9 in the Sind district.

In the next group of diseases there were 56 admissions for *parasitic* affections, the admission rate being 5·0 as compared with 5·5 in the previous year. All the admissions but eight were cases of tænia solium. *Scurvy* caused 10 admissions, being in the ratio of ·9 per 1,000, a decline of 1·5. Four of the cases occurred in the Sind district, and three in the Poona district. The admissions under the head of *alcoholism* were 126 in number and the deaths 3. The ratios were, therefore, 11·2 and ·27 per 1,000, the former being higher by 2 than the corresponding ratio in the previous year, but the latter identical with it. Alcoholism was most prevalent in the Sind division, the ratio being 20·9, and next in the Bombay district, 16·5. In the Poona and Mhow circles the ratios were only 7·7 and 6·1 respectively. Of the total number of cases, 9 with one death are returned as delirium tremens, the remainder as alcoholism.

Debility, &c.—351 admissions are recorded, being in the ratio of 31·1 per 1,000, which is below the rate in the preceding year by 7·7, and also below the average rate. In the Sind and the Bombay districts and the Poona division there was a decrease in the admission rate, but there was an increase in the Mhow circle. The ratio at the Sanitaria was, of course, high.

In the succeeding group of diseases *rheumatism* shows 313 admissions, but no death. The admission ratio, 27·7 per 1,000, is below the ratio in the previous year by 2·2, and also below the average rate. Of the admissions 21 are

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returned as rheumatic fever. Excepting the Sanitaria, where there was an admission ratio of 63·0, the highest rate of prevalence of rheumatic affections was 31·5 in the Bombay district, the next being 30·3 in the Poona district, 25·2 in the Mhow circle, and 17·4 in Sind. Compared with the previous year's ratios there is a decrease of 17·6 in the ratio for Mhow, and an increase of 9·2 in that for Poona; in the other two districts the difference is not striking. *Bombay.*

Tubercular Diseases.—28 admissions and 14 deaths are returned, 6 of the latter being of invalids. The ratios of admission and mortality were 2·5 and 1·24 per 1,000, as compared with 6·3 and 1·00 respectively. All the cases were due to tubercular disease of the lung. The greatest prevalence of these diseases was in the Bombay district, the ratio being 4·9 per 1,000, the Sind district having the next, 3·5; in the Poona and Mhow circles the ratios were low, 1·4 and 1·3 respectively. Mortality, in the country, was highest in the Sind district, 1·39, and lowest in the Mhow circle, ·34. Compared with corresponding results in the preceding year there was an increase both in sickness and mortality from these affections in Sind, a decrease in the Bombay and Poona districts, and in the Mhow circle there was a slight decrease in prevalence, but an increase in mortality.

Other Diseases of this group gave 251 admissions and 3 deaths, including 2 of invalids, the ratios being 22·2 and ·27 per 1,000 as compared with 20·4 and ·18 in the previous year. The admissions comprised 148 for non-malignant growths, chiefly of a simple character, 2 cases of cancer, 1 of glycosuria, 12 of scrofula, and 88 of anæmia, one of which proved fatal. The deaths of invalids were from cancer.

Local Diseases.—*Diseases of the Nervous System* caused 143 admissions and 3 deaths, being in the ratios of 12·7 and ·27 per 1,000. The ratio of admission is lower than in the preceding year by 3·7, and also below the average ratio for the preceding five years. 52 of the cases, equal to 4·6 per 1,000, were mental affections, as compared with 30, or 2·7, in the preceding year. The highest ratio of prevalence of nervous diseases in any district was 39·3 per 1,000, of which 12·4 was due to mental disease, in the Bombay district. In the preceding year the highest ratio was in the same district, the ratio being 40·8, of which 9·1 was mental disease. In the other districts the ratios of prevalence were comparatively low; that in the Poona circle being 6·9, that in the Mhow division 6·7, and that in Sind 4·9; and they are all except Sind below the corresponding ratios in the preceding year. The principal nervous affections causing admission were neuralgia, 58 cases, and epilepsy, 10; and the most frequent mental diseases were melancholia and dementia, 22 and 18 cases respectively. The deaths were, one from meningitis, one from abscess of the brain, and one from apoplexy.

Diseases of the Eye.—The admissions were 210 in number, equal to a ratio of 18·6 per 1,000, which is above the last year's rate by 1·7, and above the average rate. As in the preceding two years, the greatest prevalence of ophthalmic affections occurred in the Poona circle, 24·3, but this rate is slightly lower than in the previous year. The ratio in the Bombay district, 15·8, is also slightly lower, but the rates in the Sind and Mhow circles, 16·7 and 17·2, are somewhat increased. About three fourths of the admissions were due to conjunctivitis, the remainder being of various character.

Diseases of other Organs of Special Sense caused 175 admissions, being in the ratio of 15·5 per 1,000, a decline of 1·0 from the rate in the previous year. It is, however, somewhat above the quinquennial average rate. The greatest prevalence of these affections was in the Sind district, where the ratio reached 42·4, and the least in the Poona circle, 9·0. 164 of the cases were aural affections, over four fifths of them being inflammation of the external meatus.

Diseases of the Circulatory System.—148 admissions and 3 deaths are returned, being in the ratios of 13·1 and ·27 per 1,000 respectively, which are lower than the corresponding ratios in the preceding year by 6·9 and by ·19, and are also below the quinquennial average rates. The greatest prevalence of these affections was in the Poona circle, where the ratio was 18·9, and the next was the Bombay district with a rate of 15·4; in the Mhow and Sind circles the prevalence ratios were low, only 7·1 and 7·0 respectively. Compared with last year's results a decrease has taken place in Bombay and Mhow, and an increase in Sind and Poona divisions. The principal causes

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of admission were palpitation, 108 cases, and valvular disease of heart, 29 cases. Among the latter were 2 deaths, and there was also one death from aortic aneurysm.

Diseases of the Respiratory System.—Under this head 282 admissions and 6 deaths are returned. The admission ratio, therefore, was 25·0, and the death ratio, ·53 per 1,000. Compared with similar ratios in the previous year there is a decrease of 12·6 in the admission rate, and one of ·20 in the death rate, and both these rates are below the average rates of the preceding five years. The greatest prevalence of respiratory affection was in the Sind district, the ratio being 34·1. This was closely followed by the Bombay district with 31·1, then by the Mhow circle, 21·9, and the Poona circle, 19·4. Compared with corresponding results in the preceding year a slight increase is observed in the ratio for Sind, and a slight decrease in the Bombay district, but in the Poona and Mhow circles a considerable decrease occurred. Bronchitis was the cause of more than three fourths of the admissions, and among the remainder were 20 for pneumonia, 13 for pleurisy, and 8 for pneumonic phthisis. The deaths were 2 from pneumonia, 2 from pneumonic phthisis, one from passive congestion of the lungs, and one from empyema.

Diseases of the Digestive System caused 1,596 admissions and 17 deaths, including 3 of invalids, being in the ratios of 141·4 and 1·51 per 1,000 respectively. The admission ratio is lower than the corresponding rate in the previous year by 11·9, and the death ratio by ·13, and both rates are lower than the corresponding quinquennial average rates. The ratios of prevalence in the different districts varied from 190·0 in Sind, to 108·3 in the Poona circle, the intermediate rates being 153·4 in the Bombay district and 141·7 in the Mhow circle. Mortality was highest in the last-mentioned circle, 2·26, and lowest, ·27, in the Poona circle, the intermediate rates being ·75 and ·70 in the Bombay and Sind districts respectively. Compared with corresponding ratios in the preceding year a marked increase in prevalence occurred in the Sind district, but in all the other districts there was a decrease to some extent. Mortality declined in the Bombay, Sind, and Poona districts, but increased in the Mhow circle. The admission rate for these diseases in the Sanitaria was, as usual, high, as well as the death rate, and both were in excess of the rates in the previous year. The principal causes of admission were affections of the mouth and throat, diarrhœa, dyspepsia, and hepatic affections. The last-named comprised 155 cases of hepatitis, 38 of hepatic congestion, 13 of abscess of the liver, and 68 of jaundice. The causes of the deaths which took place in the Command were abscess of the liver 6 cases, hepat tis 3, diarrhœa 2, and enteritis, hernia, and intestinal obstruction one case respectively. The deaths of invalids were from abscess of the liver.

In Abstract XXXIII. is a table, taken from the report of the Principal Medical Officer, showing the prevalence of dysentery, diarrhœa, hepatitis, and abscess of liver in each division of the Command; and in Abstract XXXIV. a table showing the prevalence of, and mortality from, these diseases in each quarter of the year. The sickness and mortality from dysentery has been alluded to on a previous page. The ratio of admission for diarrhœa was 40·7 per 1,000, as compared with 45·7 in the preceding year. As in the previous year, the highest ratio of prevalence was in the Mhow circle, and was 44·6; the Bombay district was next with 42·7, the Poona circle following with 38·3, and Sind with the lowest rate, 29·9. By far the greatest prevalence of diarrhœa during the year was in the third quarter, the rate being 16·4, the next was 9·6 in the fourth quarter, being followed by the first and second quarters, with 7·9 and 7·0 respectively. Hepatitis and hepatic abscess gave a ratio of 14·8 for admission and one of ·80 for death, the former being higher by 1·5, and the latter lower by ·38, than the corresponding ratios in the previous year. The greatest prevalence of hepatic diseases in any circle was in the Bombay district, the rate being 21·0, which is an increase of 2·3 on that in previous year; the lowest ratio was 12·0 in the Mhow division, the Poona division with 14·5 and Sind with 12·5, being intermediate. The highest mortality rate, 1·33, was in the Mhow circle, and in Sind no death occurred. With regard to seasonal prevalence hepatitis gave the highest admission rate, 5·6 in the third quarter of the year, the next 3·7 in the second quarter, followed by 3·0 in the first, and by 2·7 in the last quarter. Mortality was highest in the fourth quarter, ·42, and lowest in the first quarter, *nil*.

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Diseases of the Lymphatic and Glandular System.—This order included 242 admissions, equal to 21·4 per 1,000, which is lower than the ratio in the preceding year by 3·6, but above the average rate. The highest ratio of prevalence was in the Bombay district, 26·3, the next being in Sind, 24·4, followed by the Mhow circle with 18·5, and the Poona circle with 16·7. About three fourths of the admissions were for affections of the inguinal glands, and there were 23 admissions for diseases of the spleen. *Bombay.*

Diseases of the Urinary System caused 24 admissions and 3 deaths, including that of an invalid. The ratio of admission, 2·1 per 1,000, was lower than that in the previous year by 1·1, but the ratio of mortality, ·27, was higher by ·09. The chief causes of admission were cystitis, nephritis, and Bright's disease. The deaths were due to Bright's disease in two instances (one an invalid) and cystitis in one.

Diseases of the Generative System.—682 admissions are returned, equal to 60·5 per 1,000, an increase of 3·5 on the preceding year. As before shown, more than half the admissions were for simple venereal ulcer, and among the remainder the great majority were due to balanitis, orchitis, or stricture of the urethra.

Diseases of the Organs of Locomotion.—There were 52 admissions and 2 deaths, one being that of an invalid; the admission ratio was 4·6 per 1,000, and was below the ratio in the preceding year by 2·1, and below the average rate. Synovitis caused 24 admissions, the remainder being for various causes. The deaths were one from necrosis and one from degeneration of cartilage.

Diseases of the Connective Tissue.—The admissions numbered 174, equal to a ratio of 15·4 per 1,000, which is lower than that in the preceding year by 8·9, and is also below the average rate. Of the cases 132 were abscess, 41 of inflammation of connective tissue, and one of œdema.

Diseases of the Skin caused 792 admissions, the ratio being 70·2 per 1,000, which is a little above the average rate, and above the ratio in the preceding year by 2·8. By far the greatest prevalence of these affections was, as was also the case in the previous year, in the Sind district, the ratio was 178·8; in the Bombay district it was 77·6, and in the Mhow and Poona circles 49·5 and 44·8 respectively. The principal causes of admission were boils, ringworm, ulcers, and whitlows, and in the order given.

Poisons were represented by 3 admissions, two from poisoning by vegetable substances and one a poisoned wound.

Injuries.—The ratio of admission for injuries was 111·4, and the death rate 1·77 per 1,000. Compared with the corresponding ratios for the preceding year a decrease of 15·7 is observed in the ratio of admission and one of ·77 in that of mortality. General injuries caused 19 admissions and 16 deaths. Of the admissions 16 were from heatstroke, seven being returned as sunstroke and nine as heat apoplexy. Of the deaths 4 were cases of sunstroke, 7 heat apoplexy, 4 accidental drowning, and 1 strangulation, suicidal. Local injuries caused 1,238 admissions and 4 deaths. About five sixths of the admissions were due to contusions, wounds, sprains, or abrasions, and among the remainder were 59 cases of fracture and 15 of dislocation. There were 3 deaths from fracture, one of fracture of the base of the skull, one of fracture of the spine, and the other from fracture of the pelvis, the result of falls. The remaining death was due to gunshot wound, suicidal. Of the two deaths by suicide it is stated that the man who hanged himself was a hard drinker, and was under treatment for alcoholism at the time; no motive could be assigned for the act in the case of the man who shot himself; in both cases a verdict of temporary insanity was returned at the inquest.

The surgical operations performed during the year were, though numerous, chiefly of a minor character; but there were two cases of aspiration of hepatic abscess, which proved fatal, and there was one case of perineal section on account of rupture of the urethra combined with comminuted fracture of the pelvis, in which also there was a fatal result. An amputation of the arm on account of comminuted fracture of the humerus, and an excision of the eyeball on account of rupture of the globe, together with all the other operations performed, gave successful results.

Invaliding.—The number of men sent home as invalids during the year was 317, equal to a ratio of 28·10 per 1,000, which is almost identical with that

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for the preceding year, though lower than the average rate for the preceding decennial period by 14·55. The ratios of invaliding in the different arms of the service were 33·78 per 1,000 in the cavalry, 45·57 in the artillery, and 19·07 in the infantry; compared with corresponding ratios in the preceding year the rate for cavalry shows a decline of 19·19, and that for infantry one of 3·71, but that for artillery was increased by 4·89. Of individual corps, the invaliding rate for the 7th Dragoon Guards, stationed at Mhow, and the only cavalry regiment in the Command, the rate is the same as that given above. In batteries of artillery whose average annual strength was over 100 men the highest invaliding rate was 87·72 per 1,000 in No. 5 Battery, 1st Brigade, North Irish Division, quartered at Colaba, the next being 77·59, in A Battery, 2nd Brigade, stationed at Aden; in one battery there was no invaliding, and in T Battery, 1st Brigade, the ratio was 12·90, the battery was stationed at Hyderabad. In the infantry the highest invaliding rate was 42·55 per 1,000 in the 1st Battalion, Worcestershire Regiment, at Karachi, but only for a short time; the next was 34·53 in the 2nd Battalion, East Yorkshire Regiment, stationed at Colaba; the lowest ratio was 5·86 in the 2nd Battalion, King's Own Yorkshire Light Infantry, at Karachi, the next being 8·04 in the 2nd Battalion, North Staffordshire Regiment, at Aden.

The influence of age and length of service in the Command on invaliding during the year is shown in tables given on a previous page. With regard to the former it is observed that among men under 20 years of age the invaliding ratio was 14·46 per 1,000, but among men between 20 to 25 years the rate was almost doubled, still further increasing in the next quinquennium, then falling, but to increase again among men between 35 and 40 years of age. With regard to length of service the invaliding ratio was lowest among men under one year's service in the country, but among men in their second year of service it was the highest, reaching 41·18 per 1,000, after which the ratio drops to 22·31 in the fifth year of service, rising again among men between 5 and 10 years' service.

The principal causes of invaliding to England were dysentery, 18 cases, or 1·60 per 1,000, an increase of ·41 on the rate in the previous year; secondary syphilis also 18 cases, or 1·60, an increase of 42; debility, 67, or 5·94 per 1,000, which scarcely differs from the last year's rate; rheumatism, 14 cases, or 1·24 per 1,000; tubercular diseases, 1·60, both showing but little change; nervous diseases, 27 cases, or 2·39 per 1,000, which is almost the same as the last year's rate, but 1·33 of this ratio was due to mental disease, which is an increase of ·51; diseases of the circulatory system, 44 cases, or 4·08 per 1,000, an increase of ·81; and diseases of the digestive system, 22 cases, or 1·95 per 1,000, which is a fractional decrease as compared with the previous year's rate.

The number of men finally discharged as medically unfit for further service was 139, equal to a ratio of 12·32 per 1,000, which is higher than the corresponding rate in the previous year by 1·32, but lower than the decennial average rate by 3·47. The chief disabilities necessitating discharge were tubercular diseases, 16 cases, or 1·42 per 1,000, an increase of ·33 on the previous year's rate; mental disease also 16 cases, or 1·42, which is about the same as in the foregoing year, and diseases of the circulatory system, 27 cases, or 2·39 per 1,000, as compared with 1·36 in the preceding year.

Officers.—The annual returns show the average strength of officers to have been 356, the number of attacks of illness 218, of deaths 3, and of officers invalided to England 22. The ratio of prevalence of sickness, therefore, was 612·3, that of mortality 8·42, and that of invaliding 61·80 per 1,000. Compared with corresponding rates in the preceding year a slight increase is observed in the ratio of sickness, a fractional one in that of deaths, and an increase, 17·60, in the ratio of invaliding. Simple continued fevers caused 39 attacks of illness, and there were 5 cases of enteric fever, 2 of which were fatal. There were 12 attacks of dysentery, one of which had a fatal result. Malarial fevers numbered 36, of which 4 were cases of remittent fever. In addition to the foregoing, the most frequent causes of sickness were diseases of the digestive system, 41 cases, 5 being instances of hepatic diseases, and injuries 32 cases, including 1 of sun-stroke, 1 of heat apoplexy, 2 of concussion of the brain, and 4 of fracture. The causes of invaliding were debility, 5 cases, the result of injury, 4 cases, simple continued fevers, enteric fever,

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dysentery, and ague; two cases each; and typhlitis, diarrhœa, hepatitis, anæmia, and malignant disease, one case respectively. *Bombay.*

Women.—The average strength was 562, and there were 403 admissions into hospital and 9 deaths, being in the ratios of 717·0 and 16·01 per 1,000 respectively. The ratio of admission, which does not include cases of ordinary parturition, is lower than the corresponding rate in the previous year by 121·8, but the death rate is increased by 1·35. Among the admissions were 6 for simple continued fever and 4 from enteric fever. Two cases of cholera occurred, both fatal. Dysentery caused 5 admissions, one of which had a fatal termination. Malarial fevers were the cause of 54 admissions, 5 cases, with one death, being remittent fever, and the remainder ague. Debility caused no less than 166 admissions, and there were 4 cases of rheumatism, and 4 of tubercular disease of the lungs, two of which proved fatal. Among local diseases, nervous affections caused 11 admissions, ophthalmic disease, 11, chiefly cases of conjunctivitis; respiratory affections, 10; diseases of the digestive system, 68 cases, of which two thirds were either diarrhœa or dyspepsia, and out of the remaining third were 14 cases of hepatic affection, and there were 28 admissions for diseases of the generative system, including 6 cases of abortion, and 2 fatal cases of postpartum hæmorrhage.

Children.—The average strength of children is returned as 1,105; among whom there were 637 admissions and 59 deaths, being in the ratios of 576·5 and 53·40 per 1,000, which are higher than the corresponding ratios in the preceding year by 19·5 and 4·64 respectively. Eruptive fevers caused 107 admissions, 2 being for chicken-pox, and the remainder for measles; the ratio of prevalence for measles was equal to 95·0 per 1,000, about a sixth of the total sickness, and more than accounts for the increase of the sick rate over that of the previous year. Four deaths were due to measles. Whooping cough caused 14 admissions and 2 deaths, simple continued fever 29 and 2 deaths, and dysentery 10 and 1 death. Malarial fevers show 64 cases, 17, two of which were fatal, being remittent fever. Development diseases were in the ratio of admission of 97·7, all the cases but three being debility, from which also there were 6 deaths; there were also two deaths recorded as immaturity at birth, and one from malformation of spinal column. Among local diseases, nervous affections caused 15 admissions, mostly infantile convulsions; from the latter disease there were 10 deaths, there was also one death from spinal meningitis. Ophthalmic affections gave 57 admissions, nearly all being simple conjunctivitis. Aural diseases were represented by one fatal case of disease of the tympanum, and diseases of the circulatory system by a fatal case of cyanosis. The admissions for diseases of the respiratory system were 46 in number, 40 being bronchitis, 3 of which proved fatal, 4 pneumonia, 2 fatal, and 2 croup, one fatal. Diseases of the digestive system caused 123 admissions, 75 being cases of diarrhœa, 11 of which died, and 28 teething, of which 6 died; the rest were chiefly affections of the mouth and throat. The admissions in the remaining order of diseases were few, and do not require special allusion. Of the three deaths not accounted for, one is returned as due to pemphigus, and two to asphyxia, by drowning in one case, but in the other particulars are not given.

Sanitary Conditions.—The following remarks on the health and sanitary conditions of the different circles of administration and stations are taken from the report of the Principal Medical Officer.

Bombay District.—At Aden the sanitation and conservancy of the barracks and hospitals were considered to be entirely satisfactory by the Deputy Surgeon-General, as also the rations, clothing, and duties of the troops. At Colaba the general health was good, and malarial fevers were less prevalent. The sanitary state of the station was generally satisfactory, but some defects were brought to notice with a view to removal. New barracks were under construction. The hospital accommodation is insufficient in the trooping season, and it was necessary to supplement it by tents. Rations, water supply, and clothing were satisfactory. Drainage is efficient, and conservancy properly carried out. At Deolali there is only barrack accommodation for 600 men, a number very often exceeded, rendering it necessary to use tents to prevent overcrowding. At Ahmedabad the general health was fair; fevers were prevalent during the autumn. The sanitary condition of the barracks and lines was good, except that the means for removal of the waste water from the wash-

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Bombay. houses are not considered satisfactory, the water supply good and sufficient. The dry-earth latrine system is in use and well carried out. The ventilation of the barracks and married quarters is good, and the ventilation of the hospital, formerly reported defective, was made satisfactory. At Deesa the general health of the troops was very good, and there was an absence of serious disease. The water supply is reported to be good and sufficient, and sanitation was carefully attended to. At Mount Abu malarial fevers, chiefly ague of the quotidian type, prevailed extensively after the monsoon rains. Regarding this prevalence, the medical officer in charge mentions some of the suggested causes, viz., the proximity of the lake, the great gorge overlooking the Banas Valley, the valley to the north-east of the barracks under cultivation, and local causes in the station itself. In his opinion the second and fourth points are the chief factors in the production of malarial poison, and in both situations he considers that the great amount of wet, decaying vegetation is the true source from which the poison is derived. He says :—"From the climate of Abu, "the rain all falling within a very short space of time within two months, and "being a fairly large amount, average 60 inches, the growth of vegetation is "very rapid. It shoots up in a watery, weakly way, soon topples over, beaten "down by the heavy, continuous rain, and lies rotting and macerating on the "ground. When the rains cease and hot sunny days take their place, in a "few weeks the pools of water dry up and moisture and rotting vegetation "alone remain, malaria is set free and paroxysmal fevers begin." The sanitary state of the hill generally, the barracks, and the hospital was satisfactory.

Poona Division.—It is reported that the general health of the troops in the division was fairly good; there were no epidemics among the troops, but cholera existed throughout the division among the civil population in such general prevalence that the concentration of troops for a camp of exercise, which had been intended, was, after careful consideration, abandoned. At Poona the general sanitation and cleanliness of the barracks was carefully attended to. It is reported that there was an excess in the number of cases of malarial fever from Ghorpuri barracks as compared with Wanowrie barracks, in the proportion of 40 per cent. of strength to 11 per cent. "No cause has "been assigned for this excessive amount of fever in these barracks, nor "has any means of checking it been found available. For so many years "Ghorpuri has had a well-earned reputation for unhealthiness that it is "doubtful whether anything short of the abandonment of the site will give "any beneficial result." At Kirkee the barracks and hospital were in a satisfactory sanitary condition, and conservancy was carried out in a very complete manner. It is stated, however, that no satisfactory means of disposing of the waste water was yet devised. At Satara, though there was a slight increase in the number of admissions, the general health was satisfactory. The accommodation in the barracks was sufficient, and the ventilation satisfactory. Conservancy was carried out on the dry-earth system with satisfactory results. At Purandhar Sanitarium the difficulty in warming and drying during the monsoon months was again felt, and it was necessary to specially recommend fires during this period. It is remarked that patients suffering from debility after cholera, enteric or malarial fevers do well at this station, but other classes of disease are aggravated rather than improved by residence at it, such as cardiac diseases, diarrhœa and dysentery, nervous affections, unless of malarial origin, and hepatic disorders.

Mhow Division.—At Mhow the general sanitary condition of the barracks and their surroundings was good, the ventilation of most of the latrines had been improved, but, as a rule, these buildings are too solid, and the screen walls not sufficiently perforated to allow of free perflation of air. The water supply in the hot season was rather limited. The waterworks scheme was progressing, and it was expected that in the course of a year this water would be in general use. The prevalence of enteric fever and the occurrence of cholera have already been alluded to. At Nasirabad the sanitary state of the barracks and hospital and subsidiary buildings was satisfactory, except that the ventilation of a block in the artillery lines was defective owing to original faulty construction; the ventilation of the latrines and also of the coffee-shop was defective. No epidemic occurred during the year, but it is stated that the health of the troops was very indifferent, the increase in admission rate being principally due to malarial fever.

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At Neemuch, also, the health of the troops was indifferent. The sanitary condition of the different barracks and the hospital was satisfactory, and there was no overcrowding. Representations were, however, made regarding the defective state of the followers' latrines. At the hill fortress of Asirgarh the sanitary state of the barracks, hospital, and outbuildings, and of the fort generally, was satisfactory, and the water supply was good and sufficient. At Indore also the barracks and hospital were in a good sanitary condition, and the dry-earth system of conservancy was carried out satisfactorily.

Sind District.—The general health of the troops in this district was very good. The hot season was remarkably mild, the rainfall was below the average, and the inundation was less than usual. There was a great decrease in all fevers as compared with the previous year. At Karachi this was very noticeable, particularly in the case of ague. The drainage scheme for the city and cantonment of Karachi was brought under consideration during the year, but had not yet been carried out. A direct water supply by means of pipes has been provided, doing away with the necessity for water-carts and mussacks, and it is thought that this may have had an influence for good on the general health. A number of men were sent to the Ghizree Sanitarium, which is a section of the Karachi station hospital, and the change was especially beneficial to convalescent fever cases. At Hyderabad also the health of the troops was very good, and there was a further decrease in the prevalence of fevers. The barracks and hospital and their surroundings were in good sanitary condition.

The Principal Medical Officer in his concluding remarks again draws attention to the suggestions he offered in his report of the preceding year regarding the construction of floors of barracks and hospitals, that they should be made of some non-absorbent material impervious to water as well as gases, so that they might be flushed and washed from time to time without danger of any germs of infection being left behind. He also again calls attention to the necessity that exists of making proper arrangements for the removal of rain-water from the roofs of barracks and hospitals.

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XIII.—ON THE HEALTH OF THE TROOPS SERVING IN EGYPT.

Sickness and Mortality.

Egypt.

The average strength of British troops serving in Egypt during the year was 5,272. In Lower Egypt the stations occupied by them were Cairo, Abbassiyeh, Alexandria, and, for a short time, Assiout; in Upper Egypt the only station occupied was Assuan. The garrison at the last-named place was at the commencement of the year 1,994, in March it was reduced to 842, and in June to 91, about which strength it remained until the close of the year; the average annual strength was 445. The average strength of the whole Command in January was 8,060, by March this was reduced to 4,125, and by December to 4,440.

At the beginning of the year the force consisted of the headquarters and a detachment 20th Hussars, one battery of Royal Horse Artillery, five batteries of Garrison Artillery, Royal Engineers, eight battalions of infantry, some Mounted Infantry, detachments departmental corps and garrison staff. During the year the battery of horse artillery and four of the garrison batteries left the Command, also five of the battalions of infantry, while one battalion, the 3rd Rifle Brigade, joined towards the end of the year.

The subjoined table shows the more important health statistics of the troops in Lower Egypt and in the Frontier Field Force as well as those of the whole Command during the year. The statistics of sickness and mortality in individual corps will be found in Abstract XXXIX.

1887.	Average Annual Strength.	Admissions.	Deaths			Invalids	
			In Command.	Of Invalids.	Total.	Sent Home.	Finally discharged.
Lower Egypt -	4,827	5,451	68	1	68	141	91
Frontier Force (Assuan).	445	370	12		12		
Total force -	5,272	5,821	80	1	81	141	91

(*continued.*)

1887.	Average Daily Sick.	Ratios per 1,000 of Strength.				
		Admissions.	Deaths.	Invalids sent Home.	Invalids finally discharged.	Average constantly Sick.
Lower Egypt -	345·41	1,129·3	14·09	26·74	17·26	71·56
Frontier Force (Assuan).	19·78	831·5	26·96			44·45
Total force -	365·19	1,104·1	15·36	26·74	17·27	69·26

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Compared with the corresponding ratios for the preceding year the admission rate for the whole Command has declined by 167·8 per 1,000, the death rate by 21·52, and the constantly sick rate by 4·91; and in comparison with average ratios for the previous four years there is also a decrease in each instance, being 205·3, 14·22, and 7·50 respectively. The average sick time to each soldier was 25·28 days, and the average duration of each case of sickness 22·90 days, the former being shorter than the corresponding period in the previous year by 1·79 days, and than the average period in the preceding four years by 2·74 days, but the latter is longer in both these comparisons by 1·62 and 1·50 days respectively. With regard to Lower Egypt alone the admission ratio has decreased by 206·4 per 1,000, the mortality ratio by 5·64, and the ratio of constant inefficiency through sickness by 10·28, as compared with similar ratios in the preceding year. In the Frontier Field Force in this comparison the decrease in admission rate equals 329·7 per 1,000, in death rate 43·55, and in constantly sick rate 14·15. The improved health is thought by the Principal Medical Officer, Surgeon-General W. Sim Murray, to be "due "to the more careful selection of the men, none being allowed to serve there "in the hot weather who were under 22 years of age, and also to the men "being frequently relieved, every six weeks, during that season." *Egypt.*

The sickness and mortality in the different arms of the service in the Command were in the following annual ratios per 1,000, of strength:—For admissions, cavalry 907·6, artillery 1225·8, engineers 929·4, infantry 1,219·3, and departments 508·4; for mortality, cavalry *nil*; artillery 17·59, engineers 15·68, infantry 16·41, and departments 16·89; and for constant inefficiency through sickness, cavalry 57·61, artillery 74·6, engineers 51·33, infantry 76·90, and departments 33·10. In nearly every instance these ratios compare favourably with the corresponding ratios in the preceding year.

With regard to the statistics of sickness and mortality in particular corps shown in the table referred to, it will be observed that there is considerable variation in them. They cannot, however, be fairly compared one with another as, owing to the gradual reduction of the garrison by the removal of regiments and batteries during the year, some of the annual ratios depend on a very short residence of the particular corps in the Command, and consequently a small average annual strength. Taking those corps which served the whole year, or the greater part of it, in the Command, it is observed that the highest ratio of admission, 1674·0 per 1,000, occurred in the 1st Battalion Welsh Regiment, followed by 1350·0 in the 3rd Battery, 1st Brigade, Northern Division, Royal Artillery, and 1,333·3 in the 2nd Battery, 1st Brigade, South Irish Division, Royal Artillery. Exclusive of departmental corps, the lowest admission ratio, 907·6, was in the 20th Hussars. Mortality was highest in the Northern Division Battery above mentioned, the ratio being 31·25 per 1,000, and in the 1st Battalion Royal Fusiliers the rate was 24·24. In the cavalry regiment there was no mortality. The greatest amount of inefficiency through sickness was in the Welsh Regiment and reached 92·25 per 1,000, the Cheshire Regiment also had a high rate, 80·73; the lowest ratio was 57·61 in the 20th Hussars.

The ratios of sickness and mortality among the troops according to age and to length of service in the Command have been calculated with the result that the highest admission at any age was 1403·2 per 1,000 among men between 20 and 25 years of age; in the succeeding quinquennium the rate was 744·6, and it fell still further after this period; the ratio among men under 20 years of age was 1000·0. Mortality was at the rate of 13·98 per 1,000 among men under 20 years of age, 14·87 among men between 20 and 24 years, 14·57 among men between 25 and 30 years, and 19·28 among men in the next quinquennium. The ratio of admission among men in their first year of service in the Command was 768·4 per 1,000, among men in their second year of service 1289·4, among men in their third year 922·7, and among men in their fourth year 1540·8, after which time it fell considerably. The mortality ratio among men in their first year of service in the Command was 12·14 per 1,000, among men in their second year 18·90, among men in their third year 8·78, and among men in their fourth year 19·72, declining to 13·51 among men in their fifth year of service in the Command.

The sickness, mortality, &c. in the different groups and orders of diseases are shown in Abstract XXXV.

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Egypt.

GENERAL DISEASES.—*Diseases dependent on Morbid Poisons.*—58 admissions are returned for *eruptive fevers*, equal to a ratio of 11·0 per 1,000, as compared with 5·2 in the previous year. 26 of the admissions were for small-pox, among which there were 4 deaths; in the preceding year there were 51 cases and 3 deaths. The admission ratio, however, shows a fractional increase. 11 cases were treated at the Citadel Hospital, Cairo, 5 cases, one of them fatal, at Abbasiyeh, 1 case at Ramleh, 1 at Assiout, and 8 cases, with 3 deaths, at Assouan. The Principal Medical Officer stated that it is very difficult to trace the source of infection in these cases, but the disease is very prevalent among the native population, and vaccination is very imperfectly carried out among them. 27 admissions occurred for scarlet fever. A mild epidemic of this disease broke out among the troops in October; the first two cases occurred almost simultaneously at the Citadel, Cairo, and at Abbasiyeh, a distance of three miles apart; the source of the infection could not be traced; 24 of the cases occurred in Cairo. The remaining admissions for eruptive fevers comprised 3 for cow-pox, and 2 for measles, at Cairo.

Enteric Fever caused 157 admissions and 37 deaths, being in the ratios of 29·8 and 7·02 per 1,000 respectively. Compared with the corresponding ratios in the preceding year there is a considerable decline in those of the year under report, being 36·5 in the case of admissions and 14·77 in that of mortality. Compared with average ratios for the previous four years there is also a decrease in either case, in admission ratio 17·3, and in death ratio 6·09. The ratio of constantly sick from this disease declined from 9·48 per 1,000 in the previous year; and from the average rate of 6·45 to 4·74 per 1,000. The per-centage of mortality to attack was 23·5 as compared with 33 in the preceding year. The admissions occurred as follow :—122 at the Citadel, Cairo, with 30 deaths, 9 at Abbasiyeh with one death, 6 at Alexandria also with one death, and 20 at Assouan with 5 deaths. Compared with the preceding year there was a considerable increase in the ratios of admission and mortality from this disease at the Citadel, Cairo, the former having risen from 17·9 to 45·6 per 1,000, and the latter from 4·9 to 11·2. The medical officer in charge at the Citadel Hospital states that the local insanitary conditions, the unusually high Nile and its rapid fall, appear to account for the large number of admissions. In this opinion the Principal Medical Officer concurs, as "when the Nile was at its "height and began to fall, the greatest number of admissions occurred, viz., "23 in September, 30 in October, and 12 in November. As the river rises it "percolates the soil and disturbs the filth in the ground and also the contents "of the cesspits with which Cairo abounds. The insanitary material is pressed "to the surface and under the hot sun poisonous emanations rise into the air." The admissions for enteric fever at Assouan occurred during the first five months of the year and none afterwards. The immunity from this disease during the last seven months was probably due to the men sent to Assouan being specially selected, over 22 years of age, and relieved frequently. The medical officer in charge is of opinion that "the predisposition to these diseases, and the severity "of the symptoms, were increased to a large extent by the depressing influence "of the climate and the difficulty in providing healthy amusement and exer-"cise for the men in such a station." However, the decrease in the ratios of both admission and mortality are considerable as compared with those in the preceding year. At Abbasiyeh the number of cases is only about one fourth of that in the preceding year. The medical officer in charge at this station does not attribute this to improvement in sanitation or to change in the water supply, but rather to the fact that the troops were for the most part residents, as it were, in Abbasiyeh during the year, and not, as in former years, a garrison composed of a fluctuating population of men passing up and down the Nile. The decrease in admissions for this disease at Ramleh during the year is accounted for by the medical officer in a somewhat similar manner. "This year the bulk "of the force has consisted of seasoned troops (most of the weakly ones having "been weeded out), quartered in good barracks, more settled, and better fed."

Simple Continued Fever caused 1,092 admissions, equal to a ratio of 207·1 per 1,000, which is higher than the corresponding rate in the previous year by 42·8, and than the average rate of previous years by 41·2. The ratio of constant inefficiency from this fever, 6·69 per 1,000, was, however, rather lower in both these comparisons. The Principal Medical Officer remarks that the admission ratio for these fevers increased with the rise of the Nile, fell somewhat when the

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river was at its height, increased again when the river began to fall, but after a time fell steadily as the waters subsided. Of the total number of admissions 785 were at the Citadel Hospital, the medical officer in charge of which states that the disease appeared to be largely due to local insanitary conditions intensified by the unusually high Nile. A very large portion of the sick came from Kasr-el-Nil barracks on the left bank of the river, the ground in the vicinity of which was little better than a fœtid swamp at the falling of the river. The Welsh Regiment, besides other corps, was quartered in Kasr-el-Nil barracks, and these fevers were very prevalent in it. The regiment was sent into camp at Abbasiyeh in October, and shortly afterwards the health of the troops began to improve. In the previous year this regiment had also suffered a good deal, the same course was followed and improvement speedily resulted. The troops stationed at Abbasiyeh were only slightly affected as compared with those in Cairo. The admissions at Alexandria and Assouan were comparatively few, and at the latter place the high Nile did not seem to have any effect on the number of admissions. The Principal Medical Officer remarks that the native and European (civilian) population was affected similarly as the troops, and that he is informed that after a very high Nile ,like that in the year under report, a similar prevalence of fever invariably occurs. At the time that simple continued fever was most prevalent there was also an increase in the admissions for enteric fever. *Egypt.*

Dysentery was the cause of 230 admissions and 5 deaths, being in the ratios of 43·6 and ·95 per 1,000. The admission is below the average ratio by 8·9, and than that of the preceding year by 28·4. The mortality ratio has also declined considerably. Of the cases, 43 with 3 deaths occurred at Assouan. 117 and 2 deaths at the Citadel, Cairo, 51 at Alexandria, and 19 at Abbasiyeh. With regard to the cases at Assouan the medical officer in charge ascribed them to the insanitary condition of the vicinity of the station, and to the difficulty in enforcing the rules as to wearing sufficient covering and cholera belts during the colder part of the night. Of the cases which occurred in Cairo it is stated that the largest number of admissions took place in October, indeed that the admissions for this disease and simple continued fever were concurrent.

Malarial Fevers caused 126 admissions, 7 being for remittent fever and the remainder for ague. The admission ratio was 23·9 per 1,000, an increase of 10·0 on that in the preceding year, and above the average rate. Of 119 cases of ague, 104 occurred at Alexandria, all but three in men belonging to the 1st Yorkshire Regiment, and were for the most part contracted at Mex, which during southerly winds is exposed to the malarious emanations of Lake Mariotis as it dries up on the subsidence of high Nile; 92 of the cases occurred in the months of October, November, and December. The camp has since been changed to a healthier site on the sea-shore, well cut off from Lake Mariotis, and exposed to the north-west wind. The cases of remittent fever all occurred at Assouan.

Under the head of *septic diseases* 10 admissions for erysipelas are recorded, all the cases were mild, and most of them occurred in Cairo.

In the group of venereal affections 208 admissions are recorded for primary syphilis, being in the ratio of 39·4 per 1,000 as compared with 78·2 in the preceding year, and the ratio constantly sick 3·59, as compared with 6·08, a considerable decline in each case. If, however, the sickness from simple venereal ulcers be added to the ratios of both years, the admission ratio for primary venereal sores in 1886 amounted to 128·2 per 1,000, and that of the year under report 133·7, showing a slight increase; the ratio of constantly sick for primary venereal sores was 11·24, being higher by 2·14 than in the previous year. Comparing these ratios with those of the average of four years, there is a decline of 40·6 in admission rate, and one of 1·99 in constantly sick rate.

The decrease in the ratio of admission for primary syphilis alone is great, 38·8 per 1,000, as compared with the corresponding rate for the previous year; but on the other hand the increase of the ratio for simple venereal ulcers is also great, 44·3 per 1,000. It is difficult to account for this except that, in spite of care and instruction, diagnosis is frequently faulty in these cases. The medical officer in charge, Citadel Hospital, remarks on the difficulty of diagnosis in a number of cases, and also points out the disproportion between

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Egypt.

the number of cases of secondary disease and of those returned as primary syphilis.

Secondary syphilis caused 173 admissions, equal to 32·8 per 1,000, as compared with 23·0 in the preceding year, and with an average rate of 28·1. The ratio of constant inefficiency for this disease, 3·04 per 1,000, is higher by 1·33 than in the previous year, and than the average rate for the preceding four years by ·90.

The admissions for *gonorrhœa* numbered 478, and were in the ratio of 90·7 per 1,000, being lower than that in the previous year by 7·4, and than the average rate by 10·4; the ratio of constantly sick, 6·90, was on the other hand higher in both these comparisons by 1·53 and 1·10 respectively.

Including all forms of venereal disease, the total admission rate for these affections was 257·2 per 1,000. This exceeds the rate in 1886 by 7·90, but is below the average by 46·3. The ratio of constant inefficiency for these diseases was 20·77 per 1,000, which is a higher ratio than that in the previous year by 4·59, but is fractionally below the average rate.

In the next group of diseases 21 admissions are recorded under *parasitic* affections, all cases of tænia solium. There were also 34 admissions for *alcoholism*, 3 of which were cases of delirium tremens, one of which terminated fatally.

The admission ratio for *debility*, 22·2 per 1,000, dependent on 117 admissions, is only about a third of the corresponding rate in the previous year or of the average rate.

Rheumatism caused 77 admissions and one death; the ratio of admission, 14·6 per 1,000, is less than half the average ratio as well as that of the previous year. Out of the total number of admissions there were 4 cases of rheumatic fever, and one of these proved fatal.

Tubercular Diseases show only 11 admissions, all cases of affection of the lungs, as compared with 39 cases in the preceding year. 5 deaths took place from this disease, one of them in an invalid. The remaining admissions in this group of diseases were, with the exception of two cases of anæmia, all for cases of papilloma.

Local Diseases.—*Diseases of the Nervous System* caused 27 admissions, being in the ratio of 5·1 per 1,000, which is lower than the rate in the previous year by 7·2, and much below the average rate. 10 of the admissions were cases of mental disease, and among the remainder were two cases of inflammation of cerebral membranes, both of which died, and four cases of paralysis, one of which proved fatal.

Diseases of Organs of Special Senses show 257 admissions for ophthalmic and 56 for aural and nasal affections. The ratios, 48·7 and 10·6 per 1,000, are a good deal below average ratios as well as below those in the preceding year. Nearly all the admissions for eye affections were due to conjunctivitis of a mild type, and most of the aural affections were inflammation of the external meatus.

Diseases of the Circulatory System.—Under this head 66 admissions are recorded, 49 of which were cases of palpitation and 12 of valvular disease of the heart. Four deaths occurred, one from fatty degeneration of the heart, dilatation of the heart, thrombosis, and aneurysm of the aorta respectively. The admission ratio, 12·5 per 1,000, shows a slight decrease as compared with the previous year's rate and with the average rates.

Diseases of the Respiratory System also show a decrease in prevalence in comparison with previous years. The admission rate, 20·3 per 1,000, depends on 107 admissions, 73 of which were bronchial affections, 13 pneumonia, and 14 pleurisy. There were 3 deaths, all cases of pneumonia.

Diseases of the Digestive System caused 632 admissions and 7 deaths, equal to ratios of 119·9 and 1·33 per 1,000, as compared with 200·9 and 2·08 respectively in the previous year, and below average rates. The principal causes of admission were affections of the mouth and throat, 213 cases; dyspepsia, 112; diarrhœa, 160; and hepatic affections, 92 cases. Four cases of abscess of liver occurred, two of which were tapped, with successful result in one case. The deaths were abscess of liver, 3 cases; enteritis, 2; perityphlitis, one case; and peritonitis, one case.

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Diseases of the Lymphatic and Glandular System caused an admission rate of 34·1 per 1,000, nearly double the ratio in the previous year and the average rate. The cases were chiefly affections of the inguinal glands. *Diseases of the Generative System* were also more prevalent than in the preceding year, the admission ratio reaching 118·4 per 1,000, an increase of 48·4. This is due to the large number of cases, 497, returned as simple venereal ulcer. Of the remaining orders of local diseases those of the *connective tissue* and of the *skin* caused most admissions, the ratio of the former shows a slight increase, and that of the latter but little change. *Egypt.*

Under the head of *poisons* two admissions are recorded, one on account of a scorpion sting, and the other on account of oxalic acid poisoning, which had a fatal result. The poison was given to a man by an unqualified chemist in mistake for Epsom salts.

Injuries.—The admission ratio was 90·7 per 1,000, rather higher than in the previous year, and above the average rate. There were 4 admissions and 4 deaths from general injuries. Of the former, 3 were cases of sunstroke or heat apoplexy and one was a case of multiple injury. The deaths were all due to accidental drowning in the Nile. Among the admissions for local injuries, contusions, wounds, and sprains were by far the most frequent. There were 4 admissions from gunshot wound, one due to the accidental bursting of a gun, one case in which it was believed that a man intentionally wounded himself by discharging his rifle while in a state of mental depression, probably induced by drink, and two slight cases, both accidental. The following deaths occurred, one from accidental gunshot wound, one from cut throat, suicidal, while in a state of temporary insanity, one from compression of brain, two from fracture of the skull, due to falls, and one to fracture of the spine with compression of the cord, the result of diving into too shallow water.

Injuries to fingers and toes necessitated amputation in two instances, both cases did well. Aspiration of liver and removal of tonsils also had successful results.

Invaliding.—The total number of men invalided home during the year was 141, being in the ratio of 26·74 per 1,000, which is lower than the corresponding rate in the previous year by 57·15, and than the average rate by 69·75. Of the corps which served in the garrison throughout the year or nearly so, the 1st Battalion Royal Fusiliers shows the highest invaliding ratio, 46·06 per 1,000, and the 1st Battalion Welsh Regiment the lowest, 16·75. The ratios of invaliding according to age were 27·97 per 1,000 among men under 20 years of age, 30·07 among men between 20 and 25 years, 20·12 among men between 25 and 30 years, and 25·05 over that age. The ratios of invaliding according to service in the Command were 19·08 per 1,000 in men in their first year of service, 33·87 in men in their second year, 14·92 in men in their third year, and 39·44 in men in their fourth year.

The principal causes of invaliding were enteric fever, 25 cases, or 4·74 per 1,000; dysentery, 11 cases, or 2·09 per 1,000; debility, 18 cases, or 3·41; nervous affections, including 9 cases of mental disease, 19, or 3·61 per 1,000; cardiac affections, 16 cases, or 3·03; and diseases of the digestive system, 11 cases, or 2·09 per 1,000.

The number of men finally discharged the service by invalding was 91, equal to 17·26 per 1,000, which is lower than the ratio in the previous year by 7·14, and than the average rate by 13·69. The principal disabilities necessitating discharge were diseases of the nervous system, 27 cases, or 5·12 per 1,000, of these 12 were cases of mental disease; diseases of the circulatory system, 24 cases, or 4·55 per 1,000, and debility, 10 cases, or 1·90 per 1,000.

Officers.—The average strength of officers was 203, the number of attacks of illness 157; there were no deaths and 19 officers were invalided. The ratio of prevalence of sickness, 773·4 per 1,000, is slightly higher than that in the preceding year. Among the attacks of illness were 1 case of small-pox, 2 of scarlet fever, 53 of simple continued fever, 6 of enteric fever, and 4 of dysentery. Of the remaining illnesses the most numerous were disorders of the digestive system. The causes of invaliding were small-pox, 2 cases; enteric fever, 6; other fevers, 2; debility, 2; urinary disorders, 2; and tubercle of lung, rheumatism, bronchitis, and hernia, one case respectively.

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Egypt.

Women.—The average strength was 150, and there were 210 admissions and 1 death. The admission ratio, 1,400 per 1,000, was higher than that in the previous year by 524·1. The principal causes of admission were fevers, 51 cases, including one case of small-pox, enteric fever, and scarlet fever respectively; dysentery, 13 cases; debility, 24; conjunctivitis, 32; dyspepsia, 22; and disorders of the generative system, 21 cases. The death was due to dysentery.

Children.—The average strength was 236, the number of admissions 294, and there were 8 deaths. The admission ratio, 1245·8 per 1,000, is higher by 271·5 than that in the preceding year, but the death rate, 33·89, is lower by 49·41 in this comparison. The most frequent causes of illness were fevers, 38 cases; dysentery, 14; conjunctivitis, 136; bronchitis, 17; and diarrhœa, 42 cases. The deaths were as follows:—Dysentery, 2 cases; diarrhœa, 2; fevers, 2, and tabes mesenterica and convulsions one case respectively.

Sanitary Conditions.—The reports of medical officers from different stations show that sanitation was carefully attended to in all during the year, but that while the barracks and quarters occupied by the troops are kept in a sanitary condition there is much wanting in this respect in the towns in Egypt.

At Alexandria it it reported that the barracks were well ventilated and there was no overcrowding, the cubic space per man being ample. The general sanitary condition of Ramleh is good in the vicinity of the hospital, but that of Alexandria is bad, especially in the vicinity of native dwellings. The water supply from the Mahmoudiyeh canal is ample, except, perhaps, at very low Nile, and the quality is good. Ablution arrangements, both in baths and washhouses, are satisfactory. Latrines are on the dry-earth system and answer their purpose satisfactorily. Among the improvements carried out during the year were additional accommodation at Fort Kom-el-Dik; reading room, coffee bar, and accommodation for twenty men at barracks of Ras-el-Tin; verandah provided and ventilation improved at married quarters at Ras-el-Tin.

At Cairo the sanitary conditions of the Citadel barracks are said to be generally satisfactory. Owing to their elevated position on an eminence some 300 feet above sea-level, the barracks are freely exposed to prevailing winds. Ventilation is good and average cubic space sufficient. The water supply from the Abbasiyeh waterworks is good and sufficient, and the ablution arrangements are satisfactory. The drainage is satisfactory, chiefly owing to the situation. The unusually high Nile rendered the whole of Cairo more or less insanitary, and after a time the Citadel, which lies south of the city, became more or less affected. The medical officer in charge states that the troops in the Citadel largely frequent the slums in the vicinity, and he is of opinion that enteric fever is frequently developed in such localities. The Kasr-el-Nil barracks, palatial-looking buildings, are built on alluvial deposit, more or less reclaimed land, on the right bank of the Nile, and the unused ground in their vicinity is in a highly insanitary condition. During the unusually high Nile in the year past the ground was under water to a great extent, but as the water subsided and the soil became exposed to the sun offensive emanations were observed from it. All the factors for generation of miasm were present—moisture, polluted soil, and a certain amount of heat—and the medical officer in charge would not have wondered had sickness of a more serious nature broken out. He is of opinion that Kasr-el-Nil barracks should be vacated, if practicable, during the months of September, October, and November. With regard to the barracks themselves the accommodation is ample, ventilation good, and water supply good and sufficient. The Citadel Hospital is generally in a sanitary condition. The basement rooms, though high and large, are not well suited for hospital wards, as they are surrounded by the high walls of the fortress, which much impedes free circulation of air. The first-floor rooms are large, lofty, and well ventilated, even draughty at times, but this free circulation of air appeared to be beneficial. At Abbassiyeh the British troops, with the exception of some married families, were quartered in the Main barracks, two-storied buildings constructed almost entirely of stone, laid out in square formation. The average cubic space per man was about 1,200 feet, and there was no overcrowding at any time during the year. The married families were accommodated in the gymnasium barracks. The water supply is from the Nile; it is of good quality, ample in quantity, and conveniently distributed. Assiout was occupied by British troops up to the

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middle of April. The men were quartered, some in huts in an enclosure known as the Fort about midway between the river and the town, and some in rooms at the railway station. The sanitary conditions were carefully attended to; there was no overcrowding in any of the buildings occupied by the troops, and strict cleanliness was observed both within and without the barracks. At Assuan the troops occupied huts situated at the north end, about two miles below the town, until the end of August, when the rise of the Nile caused the ground to become very damp and several of the huts to collapse. The troops were then moved to Tagoog heights, situated about one mile above the town and at an elevation above the river of about 250 feet. The barracks at north end were situated on a flat strip of alluvial ground close to the river, and separated from the native town by cultivation. The situation was less exposed to the sun than that at Tagoog, but there was not so much air and the evenings were very close. At Tagoog the troops occupied huts situated in echelon on the hill and these were favorably disposed to catch the prevailing winds. The huts consisted of long buildings built of sun-dried bricks, roofed with palm branches covered with Nile mud, and wooden verandahs protected the walls from the direct rays of the sun. There was no overcrowding, and ventilation was good. The water supply for the troops was obtained from the middle of the river, and was carried by camels in small iron tanks to the camp. The water for drinking purposes was always boiled and then filtered, and during the period of high Nile it was necessary to clear the water with alum, otherwise the filters would have become choked with mud and sand. The medical officer in charge states that the chief causes which have predisposed men to disease were the youth of the men, as shown by the admissions for enteric fever, in which the average age was under 22 years, and the use of unwholesome liquors, which, even if they did not have an immediate bad effect, gave rise to neglect of the rules for avoiding the heat of the sun, and led in many cases to the use of unfiltered and dangerous drinking water. *Egypt.*

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XIV.—ON THE HEALTH OF THE TROOPS ON BOARD SHIP.

Troops on Board Ship.

The troops embarked during the year, as shown in the returns received at head-quarters, were:—

I. Troops proceeding on service abroad - - -	14,204
II. Troops returning from abroad - - - -	11,329
III. Troops proceeding from one station abroad to another -	8,533
IV. Invalids returning to England - - - -	1,803

I.—Troops proceeding on Foreign Service.

The total number of warrant officers, non-commissioned officers, and men embarked for foreign service during the year was 14,204, the equivalent annual strength being 1,068. The number of admissions into hospital was 1,339, and there were 4 deaths, being in the annual ratios of 1253·8 and 3·74 per 1,000 respectively. In the preceding year the corresponding ratios were 1312·0 and ·69 per 1,000; there is, therefore, an increase in that of mortality, but a decrease in that of admission in the year under report. Compared with the average of similar ratios for the preceding 10 years, it is observed that there is a decrease of 390·7 per 1,000 in the ratio of admission, and one of ·29 in that of mortality.

The admissions and deaths in the different groups and orders of diseases are shown in Abstract XXXVI.

General Diseases.—*Diseases dependent on Morbid Poisons.*—Under the head of *eruptive fevers* five admissions are returned, four of which were cases of measles occurring in H.M.S. "Jumna" during her voyage to Bombay in the month of January; and the remaining one was a case of epidemic rose rash occurring on H.M.S. "Tamar" en route for Mediterranean stations in February.

Continued Fevers caused 22 admissions, all of the simple variety; no case of enteric fever occurred. The admission ratio, 20·6 per 1,000, is in excess of the previous year's rate by 5·3.

Malarial Fevers were represented by 4 admissions for ague, all mild in character.

Septic Diseases caused 6 admissions, all cases of erysipelas, two of which occurred in the "Jumna" in the above-mentioned voyage, the remainder being single cases in different ships.

Venereal Diseases.—The admissions for *primary syphilis* were 186 in number, equal to a ratio of 174·2 per 1,000; but if to these the admissions for simple venereal ulcer be added, the ratio of admission for primary venereal sores was 241·6; the admissions for secondary syphilis was 39 or 36·5 per 1,000. In both these ratios there is a decline as compared with the corresponding ratio in the preceding year. The admissions for gonorrhœa numbered 312, the ratio being 292·1 per 1,000, which shows a slight increase. The total number of admissions for all forms of venereal disease was 609, and the ratio per 1,000 was 570·0, which is lower than in the preceding year.

Among other general diseases *rheumatism* was the cause of 26 admissions, being at the rate of 24·4 per 1,000, rather more frequent than in the previous year. Among the cases were 3 of rheumatic fever. *Tubercular disease* of the lungs was returned in two instances.

Local Diseases.—*Diseases of the Nervous System* caused 9 admissions, 2 being for mental disease, 6 for neuralgia, and one for epilepsy. *Diseases of Organs of Special Senses* show 24 admissions, 15 being for ophthalmic affections, all cases of conjunctivitis, and 9 for aural or nasal affections, principally inflammation of the external meatus.

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Troops on Board Ship.

Respiratory affections were 60 in number, equal to a ratio of 56·2 per 1,000, which is, however, a good deal below the previous year's rate. The great bulk of the admissions were due to bronchitis and pneumonia, 27 cases of each, caused chiefly by chill and cold. There were 4 deaths from the latter disease, two in the "Serapis" in March, one in the "Crocodile" in September, and one in the "Malabar" in December.

Diseases of the Digestive System caused 115 admissions, the ratio per 1,000 of strength being 107·7, which is an increase on that in the previous year. The chief causes of admission were affections of the mouth and throat, and there were among the remainder 6 cases of hepatic affections.

Diseases of the Generative System were the cause of 160 admissions, nearly half being cases of simple venereal ulcer. The ratio, 149·8 per 1,000, is slightly below that in the preceding year.

The only remaining order of local diseases which caused a large number of admissions was that of skin diseases, 158 cases, or 147·9 per 1,000, which differs but little from the previous year's rate. More than half the admissions were for itch, the remainder being for various ailments.

Injuries were 101 in number, the ratio being 94·6 per 1,000, showing greater frequency than in the previous year. The injuries were all of a local character, principally contusions, wounds, and sprains; there were two cases of fracture and one of severe scald.

A case of attempted suicide occurred on board the "Euphrates" in October, by a man jumping overboard while suffering from dementia.

The *sanitary condition* of the vessels is generally reported to have been satisfactory, and the accommodation sufficient for the troops.

II.—Troops Returning Home from Abroad.

The number of effective warrant officers, non-commissioned officers, and men who embarked for England during the year was 11,329, and the equivalent annual strength was 772. There were 916 admissions into hospital and 10 deaths, being in the annual ratios of 1186·5 and 12·95 per 1,000 respectively. Compared with the corresponding ratios in the preceding year there is an increase in that of admission equal to 182·5, and a decrease in that of mortality equal to 3·21 per 1,000. In comparison with average similar ratios for the preceding ten years the admission rate is increased by as much as 415·9, but the mortality rate differs but very slightly.

The admissions and deaths in the different groups and orders of diseases will be found in Abstract XXXVI.

General Diseases.—*Diseases dependent on Morbid Poisons.* Three admissions are recorded for *eruptive fevers*, all were cases of measles, two of them occurred in the "Tamar" between Alexandria and Portsmouth in November and the other in the "Euphrates" in April, the disease was also prevalent among the soldiers' children in this ship.

Continued Fevers.—No admission for enteric fever is recorded, but for simple continued fever 25 are shown, equal to a ratio of 32·4 per 1,000, which, however, is below the ratio in the previous year by 17·5.

Dysentery also caused 25 admissions, the ratio showing an increase of 12·2, 9 of the cases with 1 death occurred in the "Serapis" during her voyage at the end of the year, 5 with one death in the "Crocodile" also late in the year, and the remaining cases were scattered over various ships. There was a third death occurring on the "Serapis" in April.

The admissions for *malarial fevers* were 127 in number, the ratio per 1,000 being 164·5, which is an increase on that in the preceding year by 41·7. With the exception of one case of remittent fever all the cases were ague. Nearly all the latter were among men returning home from India.

Venereal Diseases.—The admissions for *primary syphilis* numbered 95, or 123·1 per 1,000; if, however, to this the admissions for simple venereal ulcer be added the rate for primary venereal sores is found to be double this; the admissions for *secondary disease* were 37, the ratio being 47·9; and the admissions for *gonorrhœa* were 132, or 171·0 per 1,000, all these ratios are a good deal in

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Troops on Board Ship.

excess of the corresponding rates in the previous year, and taking them altogether the total admission rate for all forms of venereal disease was 467·7 per 1,000, as compared with 333·3 in the previous year.

Alcoholism was the cause of 2 admissions, and *debility* of 35, equal to a rate of 45·3 per 1,000, two-thirds of the cases of the latter were returned on one vessel.

Rheumatism caused 16 admissions, but there was no case of rheumatic fever. There were three admissions from *tubercular diseases* of the lung, and there were two deaths from this cause.

Local Diseases.—*Diseases of the Nervous System* caused only 5 admissions, two of which were for mental disease. *Ophthalmic affections* showed 10 cases, mostly conjunctivitis, and *aural diseases*, 7 cases, all inflammation of external meatus. *Circulatory diseases* were represented by 3 cases of palpitation. *Diseases of the Respiratory System* caused 61 admissions and 3 deaths. The admission ratio, 79·0 per 1,000, is increased by 30·4, as compared with the previous year's return. The cases comprised 53 of bronchial affections with one death from bronchitis, 5 of pneumonia with 2 deaths, and 3 of pleurisy.

Diseases of the Digestive System were the cause of 51 admissions, equal to a ratio of 66·1 per 1,000, a decrease of 21·6 from the rate in the previous year. The principal causes of admission were affections of the mouth and throat, diarrhœa, and hepatic affections, and there was one death from abscess of the liver.

Of the remaining orders of local diseases, those causing most admissions were *diseases of the generative system* and *cutaneous affections*. The admission ratio of the former, 154·1 per 1,000, is more than double that shown in the previous year, and the admission ratio of the latter, 76·4 per 1,000, is slightly above that in the preceding year.

Injuries.—40 admissions are recorded, being in the rate of 51·8 per 1,000, they were, therefore, less frequent than in the foregoing year by 10·3. One admission for heat apoplexy with fatal result occurred in an Indian troopship in May, but all the other admissions were of a local nature and ordinary kind.

The sanitary condition of the vessels as well as the accommodation provided for the troops was generally reported to be satisfactory.

III.—Troops proceeding from one Station abroad to another.

The number of warrant officers, non-commissioned officers, and men who embarked for voyages between one foreign station and another was 8,533, the equivalent annual strength of which was 465. The number of admissions was 394, and there was one death. The annual admission ratio, therefore, was equal to 847·3 per 1,000, which is lower by 202·0 than the corresponding ratio for the preceding year, and than the average similar ratio for the previous 10 years by 35·3; the mortality ratio, 2·15 per 1,000, is also lower in both these comparisons by ·94 and 4·62 per 1,000 respectively.

The admissions and deaths in the different groups and orders of diseases are given in Abstract XXXVI.

General Diseases.—*Diseases dependent on Morbid Poisons.* No case of *eruptive fever* occurred during the year, but 21 admissions are recorded for *continued fevers*, all of the simple form. The ratio, 45·2 per 1,000, is lower than that in the previous year by 16·5. *Dysentery* caused only 2 admissions.

Malarial fevers were the cause of 5 admissions, all cases of ague among troops proceeding from the Straits Settlements to Bombay.

In the group of venereal diseases there were 27 admissions for *primary syphilis*, equal to 58·1 per 1,000, but if the admissions for simple venereal ulcer be added, a ratio of 225·8 is reached; the admissions for *secondary syphilis* were 8, or 17·2 per 1,000; and the admissions for *gonorrhœa* were 86, or 184·9 per 1,000. All these ratios are lower than the corresponding ratios in the previous year. The total ratio of admission for all forms of venereal disease amounted to 427·9 per 1,000.

The remaining admissions for general diseases comprised 7 cases of rheumatism, including one of rheumatic fever, and 3 cases of non-malignant growth.

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LOCAL DISEASES.—*Nervous affections* caused 3 admissions, 2 for neuralgia and one for local paralysis, and *ophthalmic diseases*, 4 admissions, all for conjunctivitis. *Diseases of the respiratory system* show 6 cases, all bronchitis, and *diseases of the digestive system* 26 cases, or 55·9 per 1,000, principally diarrhœa, dyspepsia, and throat affections. The admission ratio is much lower than in the preceding year. *Troops on Board Ship.*

Among the remaining orders of local diseases those causing most admissions were affections of *the generative system* and of *the skin*, the ratios being 197·9 and 86·0 per 1,000 respectively, which are considerably in excess of the corresponding ratios in the previous year.

Injuries caused 32 admissions, or 68·8 per 1,000, as compared with 52·5 in the preceding year. The admissions were of an ordinary character, and included two cases of fracture which, however, do not require special reference.

One death is recorded. A man missing from H.M.S. "Orontes" is supposed to have committed suicide by jumping overboard, but no motive could be discovered. This occurred at the end of the year 1886.

The *sanitary condition* of the vessels is reported to have been generally satisfactory.

IV.—INVALIDS RETURNING TO ENGLAND.

The number of invalids embarked for England from foreign stations was 1,803, among whom 10 deaths occurred at sea. These are accounted for in the tables showing the sickness and mortality of the Commands from which the men were invalided.

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ABSTRACT No. I.—TABLE showing the AVERAGE STRENGTH, CONSTANTLY SICK among the TROOPS serving in the UNITED

Average Strength in Annual Returns, 101,114. †Average Strength, including Men detached, 103,009. Diseases.	Admissions into Hospital.	Died. With the Regiment.	Died. Absent from the Regiment.	Died. Total.	Invalids Discharged the Service.
I.—GENERAL DISEASES.					
GROUP "A."					
Sub-Group I. Small-pox	7	1	—	1	—
Other Eruptive Fevers	738	8	1	9	—
Enteric Fever	137	26	2	28	—
Other Continued Fevers	689	—	—	—	—
Yellow Fever	—	—	—	—	—
Cholera	—	—	—	—	—
Dysentery	96	1	2	3	1
Other Diseases	134	1	—	1	—
Total	1,801	37	5	42	1
Sub-Group II.—Malarial Fevers	425	—	—	—	—
Sub-Group III.—Septic Diseases	261	9	—	9	1
Sub-Group IV. Syphilis, Primary	7,458	—	—	—	1
„ Secondary	4,311	3	—	3	65
Gonorrhœa	10,417	—	—	—	5
Total	22,186	3	—	3	71
Sub-Group V.—Hydrophobia, &c.	—	—	—	—	—
GROUP "B."					
Sub-Group I.—Parasitic Diseases	72	1	—	1	—
Sub-Group II. Scurvy	14	—	—	—	—
Alcoholism	326	5	—	5	1
GROUP "C."					
Debility, &c.	697	1	—	1	91
GROUP "D."					
Rheumatism	3,925	3	—	3	68
Tubercular Diseases	367	101	13	114	170
Other Diseases	595	17	1	18	36
II.—LOCAL DISEASES.					
Diseases of the—					
1. Nervous System Nervous Diseases	742	33	3	36	132
Mental „	154	1	—	1	96
2. Eye	1,257	—	—	—	68
3 & 4. Other Organs of Special Senses	719	—	—	—	49
5. Circulatory System	984	34	4	38	322
6. Respiratory „	5,787	111	8	119	79
7. Digestive „	10,156	33	4	37	94
8. Lymphatic and Glandular System	2,089	1	—	1	6
9. Urinary System	207	18	2	20	18
10. Generative „	5,419	3	—	3	30
11. Organs of Locomotion	683	1	1	2	75
12. Connective Tissue	2,276	2	—	2	10
13. Skin	8,225	—	—	—	22
III.—POISONS	14	4	1	5	—
IV.—INJURIES.					
1. General	29	38	1	39	2
2. Local	9,885	27	2	29	83
3. In Action	—	—	—	—	—
No appreciable disease	262	—	—	—	—
Cause unknown (refers to deaths only)	—	1	—	1	—
General Total	79,557	464	45	529	1,525

* The average ratios for 10 years will be given in future years. The average ratios for years, 1886 to 1888, in

† Ratios of deaths and invalids

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ADMISSIONS into HOSPITAL, DEATHS, NUMBERS INVALIDED and KINGDOM during the Year 1887, with the Ratios per 1,000 of the Strength.

Average Number constantly Sick.	Ratio per 1,000.				*Ratio per 1,000 for 1886.			
	Admissions.	Deaths.	Invalids Discharged the Service.	Constantly Sick.	Admissions.	Deaths.	Invalids Discharged the Service.	Constantly Sick.
·79	·1	·01	—	·01	·1	—	—	·01
42·27	7·3	·09	—	·42	6·4	·02	—	·30
20·72	1·4	·27	—	·20	1·6	·46	—	·25
24·98	6·8	—	—	·25	9·1	·09	—	·37
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
8·48	·9	·03	·01	·08	·9	·06	·07	·10
4·19	1·3	·01	—	·04	2·1	·01	—	·07
101·43	17·8	·41	·01	1·00	20·2	·64	·07	1·10
14·00	4·2	—	—	·14	6·1	—	·04	·23
13·78	2·6	·09	·01	·14	2·7	·05	·02	·15
679·13	73·8	—	·01	6·72	88·9	—	—	7·75
362·66	42·6	·03	·63	3·59	33·5	·05	·48	2·59
641·64	103·0	—	·05	6·34	114·8	—	·02	7·05
1683·43	219·4	·03	·69	16·65	237·2	·05	·50	17·39
—	—	—	—	—	—	—	—	—
1·59	·7	·01	—	·02	·7	·01	—	·02
·78	·1	—	—	·01	·1	—	—	·01
10·25	3·2	·05	·01	·10	3·3	·07	—	·08
48·95	6·9	·01	·88	·48	8·2	·01	1·37	·58
236·03	38·8	·03	·66	2·33	40·1	·04	1·02	2·53
58·67	3·6	1·10	1·65	·58	3·9	1·17	1·60	·61
42·33	5·9	·17	·35	·42	4·8	·11	·29	·29
55·76	7·3	·35	1·28	·55	8·0	·48	1·46	·60
27·43	1·5	·01	·93	·27	1·9	—	1·31	·34
76·46	12·4	—	·66	·76	13·8	—	·81	·80
39·08	7·1	—	·48	·39	6·4	—	·53	·36
97·34	9·7	·37	3·12	·96	9·0	·53	3·15	·82
295·97	57·2	1·15	·77	2·93	79·1	1·83	1·45	3·88
301·88	100·5	·36	·91	2·99	99·7	·49	1·22	3·10
218·38	20·7	·01	·06	2·16	21·1	·01	·05	1·99
16·30	2·1	·19	·17	·16	2·5	·21	·17	·20
342·49	53·6	·08	·29	3·39	52·0	·04	·25	2·97
56·10	6·8	·02	·73	·55	6·1	·04	·94	·50
106·48	23·5	·02	·10	1·05	24·9	·01	·12	1·07
300·09	81·4	—	·21	2·97	91·3	—	·22	3·26
·20	·1	·05	—	—	·2	·04	—	·01
2·02	·3	·36	·02	·02	·2	·36	·01	·01
406·73	97·8	·28	·81	4·02	96·8	·48	1·03	4·10
—	—	—	—	—	—	—	·01	—
8·33	2·6	—	—	·08	3·0	—	—	·08
—	—	·01	—	—	—	·01	—	—
4562·23	786·8	5·13	14·80	45·12	843·3	6·68	17·64	47·08

the two years, 1886 to 1887, will be given in the Report for 1888; those for the three
that for 1889, &c., &c.
calculated on this strength.

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ABSTRACT A.—TABLE showing the AVERAGE STRENGTH, ADMISSIONS among the TROOPS stationed in ENGLAND during the

Average Strength, 72,329. Diseases.	Admissions into Hospital.	Died. With the Regiment.	Died. Absent from Regiment.	Died. Total.	Invalids discharged the Service.	Average Number constantly Sick.
I.—GENERAL DISEASES.						
GROUP "A."						
Sub-Group I. Small-pox	6	1	—	1	—	·68
Other Eruptive Fevers	613	7	1	8	—	35·35
Enteric Fever	61	16	1	17	—	8·90
Other Continued Fevers	374	—	—	—	—	15·37
Yellow Fever	—	—	—	—	—	—
Cholera	—	—	—	—	—	—
Dysentery	91	1	1	2	—	8·11
Other Diseases	101	1	—	1	1	3·47
Total	1,246	26	3	29	1	71·88
Sub-Group II.—Malarial Fevers	367	—	—	—	—	12·43
Sub-Group III.—Septic Diseases	199	8	—	8	1	10·88
Sub-Group IV. Syphilis, Primary	5,666	—	—	—	1	521·17
" Secondary	3,340	2	—	2	48	282·74
Gonorrhœa	7,736	—	—	—	3	485·44
Total	16,742	2	—	2	52	1,289·35
Sub-Group V.—Hydrophobia, &c.	—	—	—	—	—	—
GROUP "B."						
Sub-Group I.—Parasitic Diseases	54	1	—	1	—	1·16
Sub-Group II. Scurvy	3	—	—	—	—	·17
Alcoholism	229	5	—	5	1	7·86
GROUP "C."						
Debility, &c.	550	—	—	—	72	39·33
GROUP "D."						
Rheumatism	2,901	2	—	2	52	174·82
Tubercular Diseases	283	77	10	87	128	42·46
Other Diseases	446	15	1	16	34	32·84
II.—LOCAL DISEASES.						
Diseases of the—						
1. Nervous System Nervous Diseases	553	23	2	25	102	41·57
" Mental "	90	—	—	—	64	16·73
2. Eye	902	—	—	—	51	56·66
3 & 4. Other Organs of Special Senses	538	—	—	—	33	27·36
5. Circulatory System	777	23	4	27	247	75·91
6. Respiratory "	4,390	74	5	79	57	218·39
7. Digestive "	7,542	23	3	26	69	226·57
8. Lymphatic and Glandular System	1,521	1	—	1	4	157·19
9. Urinary System	163	12	—	12	15	13·40
10. Generative "	4,068	1	—	1	26	260·51
11. Organs of Locomotion	463	1	1	2	58	38·57
12. Connective Tissue	1,616	2	—	2	9	77·43
13. Skin	6,055	—	—	—	14	218·67
III.—POISONS	9	3	1	4	—	·14
IV.—INJURIES.						
1. General	19	25	1	26	—	1·23
2. Local	6,966	18	2	20	63	291·98
3. In Action	—	—	—	—	—	—
No appreciable disease	199	—	—	—	—	6·18
Cause unknown (refers to deaths only)	—	1	—	1	—	—
General Total	58,889	343	33	376	1,153	3,412·17

* The average ratios for 10 years will be given in future years. The average ratios for 1886 to 1885, in

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into HOSPITAL, DEATHS, NUMBERS INVALIDED and CONSTANTLY SICK Year 1887, with the Ratios per 1,000 of the Strength.

Ratio per 1,000.				* Ratio per 1,000 for 1886.			
Admissions.	Deaths.	Invalids Discharged the Service.	Constantly Sick.	Admissions.	Deaths.	Invalids Discharged the Service.	Constantly Sick.
·1	·01	—	·01	·2	—	—	·01
8·5	·11	—	·49	7·6	·03	—	·35
·8	·24	—	·12	1·3	·32	—	·24
5·2	—	—	·21	7·4	·12	—	·33
—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—
1·2	·03	·01	·11	1·1	·08	·05	·12
1·4	·01	—	·05	1·5	·01	—	·06
17·2	·40	·01	·99	19·1	·56	·05	1·11
5·1	—	—	·17	7·0	—	·05	·28
2·8	·11	·01	·15	2·8	·06	—	·15
78·3	—	·01	7·21	94·1	—	—	8·30
46·2	·03	·67	3·91	34·6	·06	·44	2·66
107·0	—	·04	6·71	113·9	—	·03	7·16
231·5	·03	·72	17·83	242·6	·06	·47	18·12
—	—	—	—	—	—	—	—
·7	·01	—	·02	·8	·01	—	·02
—	—	—	—	·1	—	—	·01
3·2	·07	·01	·11	3·4	·08	—	·09
7·6	—	·99	·54	8·7	·01	1·37	·63
40·1	·03	·72	2·42	41·2	·06	1·19	2·70
3·9	1·20	1·77	·59	3·9	1·17	1·72	·60
6·2	·22	·47	·45	4·9	·12	·36	·31
7·7	·35	1·42	·57	8·3	·53	1·54	·61
1·3	—	·89	·23	1·9	—	1·51	·34
12·5	—	·70	·78	14·3	—	1·00	·84
7·4	—	·46	·39	6·3	—	·50	·37
10·7	·37	3·42	1·05	9·9	·53	3·55	·88
60·7	1·09	·79	3·02	82·2	2·04	1·60	4·00
104·3	·36	·95	3·13	103·0	·58	1·39	3·30
21·0	·01	·06	2·17	20·7	·01	·07	2·02
2·2	·17	·21	·19	2·5	·26	·14	·20
56·2	·01	·36	3·60	55·7	·05	·29	3·19
6·4	·03	·80	·53	6·4	·05	1·00	·49
22·3	·08	·12	1·07	26·1	·01	·12	1·13
83·7	—	·19	3·02	93·9	—	·21	3·31
·1	·06	—	—	·3	·05	—	·01
·3	·36	—	·02	·2	·38	—	·01
96·3	·28	·86	4·04	96·9	·44	1·16	4 20
—	—	—	—	—	—	—	—
2·8	—	—	·09	3·0	—	—	·09
—	·01	—	—	—	·01	—	—
814·2	5·20	15·93	47·17	864·1	7·10	19·30	49·01

the two years, 1886 to 1887, will be given in the Report for 1888; those for the three years, that for 1889, &c., &c.

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ABSTRACT B.—TABLE showing the AVERAGE STRENGTH, ADMISSIONS among the TROOPS stationed in SCOTLAND during the

Average Strength, 3,635. Diseases.	Admissions into Hospital.	Died. With the Regiment.	Died. Absent from Regiment.	Died. Total.	Invalids discharged the Service.	Average Number constantly Sick.
I.—GENERAL DISEASES.						
GROUP "A."						
Sub-Group I. Small-pox	—	—	—	—	—	—
Other Eruptive Fevers	17	—	—	—	—	·70
Enteric Fever	3	1	—	1	—	·56
Other Continued Fevers	21	—	—	—	—	·63
Yellow Fever	—	—	—	—	—	—
Cholera	—	—	—	—	—	—
Dysentery	1	—	—	—	—	·07
Other Diseases	6	—	—	—	—	·12
Total	48	1	—	1	—	2·08
Sub-Group II.—Malarial Fevers	9	—	—	—	—	·24
Sub-Group III.—Septic Diseases	9	1	—	1	—	·36
Sub-Group IV. Syphilis, Primary	136	—	—	—	—	11·90
" Secondary	109	—	—	—	2	8·05
Gonorrhœa	306	—	—	—	—	15·52
Total	551	—	—	—	2	35·47
Sub-Group V.—Hydrophobia, &c.	—	—	—	—	—	—
GROUP "B."						
Sub-Group I.—Parasitic Diseases	3	—	—	—	—	·08
Sub-Group II. Scurvy	2	—	—	—	—	·04
Alcoholism	17	—	—	—	—	·37
GROUP "C."						
Debility, &c.	10	—	—	—	3	·79
GROUP "D."						
Rheumatism	104	—	—	—	5	6·42
Tubercular Diseases	8	3	1	4	2	·89
Other Diseases	16	2	—	2	—	·55
II.—LOCAL DISEASES.						
Diseases of the—						
1. Nervous System (Nervous Diseases)	22	1	—	1	1	1·31
1. Nervous System (Mental ")	11	—	—	—	2	1·34
2. Eye	33	—	—	—	1	1·87
3 & 4. Other Organs of Special Senses	23	—	—	—	2	1·48
5. Circulatory System	36	2	—	2	13	3·33
6. Respiratory "	154	8	1	9	7	9·76
7. Digestive "	332	—	—	—	7	9·06
8. Lymphatic and Glandular System	40	—	—	—	—	3·85
9. Urinary System	6	1	—	1	—	·42
10. Generative "	189	1	—	1	1	11·53
11. Organs of Locomotion	23	—	—	—	1	1·12
12. Connective Tissue	68	—	—	—	—	2·68
13. Skin	312	—	—	—	2	10·10
III.—POISONS	3	1	—	1	—	·01
IV.—INJURIES.						
1. General	4	1	—	1	1	·63
2. Local	384	1	—	1	6	13·96
3. In Action	—	—	—	—	—	—
No appreciable disease	8	—	—	—	—	·22
Cause unknown (refers to deaths only)	—	—	—	—	—	—
General Total	2,415	23	2	25	56	119·98

* The average ratios for 10 years will be given in future years. The average ratios years, 1886 to 1888, in

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into HOSPITAL, DEATHS, NUMBERS INVALIDED and CONSTANTLY SICK Year 1887, with the Ratios per 1,000 of the Strength.

Ratio per 1,000.				*Ratios per 1,000 for 1886.			
Admissions.	Deaths.	Invalids Discharged the Service.	Constantly Sick.	Admissions.	Deaths.	Invalids Discharged the Service.	Constantly Sick.
—	—	—	—	—	—	—	—
4·6	—	—	·19	2·7	—	—	·15
·8	·27	—	·16	1·9	—	—	·32
5·8	—	—	·17	12·4	—	—	·32
—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—
·3	—	—	·02	—	—	·27	—
1·7	—	—	·05	8·8	—	—	·21
13·2	·27	—	·57	25·8	—	·27	1·00
2·5	—	—	·07	2·7	—	—	·07
2·5	·27	—	·10	4·7	—	—	·29
37·4	—	—	3·27	56·8	—	—	4·34
30·0	—	·55	2·21	20·9	—	·27	1·29
84·2	—	—	4·27	88·2	—	—	4·19
151·6	—	·55	9·75	165·9	—	·27	9·82
—	—	—	—	—	—	—	—
·8	—	—	·02	—	—	—	—
·6	—	—	·01	—	—	—	—
4·6	—	—	·10	2·5	—	—	·07
2·8	—	·83	·22	3·6	—	·27	·45
28·6	—	1·38	1·77	35·7	—	·55	2·14
2·2	1·10	·55	·24	3·0	·83	·83	·47
4·4	·55	—	·15	2·2	·27	—	·07
6·1	·27	·27	·36	5·0	·27	·83	·56
3·0	—	·55	·37	1·9	—	·27	·24
9·1	—	·27	·51	9·1	—	—	·30
6·3	—	·55	·41	5·2	—	—	·13
9·9	·55	3·58	·92	5·0	·27	1·93	·62
42·4	2·48	1·93	2·69	79·1	1·10	1·65	4·23
38·6	—	1·93	2·50	33·2	·83	1·10	2·26
11·0	—	—	1·06	12·4	—	—	·83
1·7	·27	—	·12	3·3	—	·27	·24
52·0	·27	·27	3·17	40·4	—	·27	1·81
6·3	—	·27	·31	4·4	—	·27	·62
18·7	—	—	·74	20·1	—	—	·99
85·8	—	·55	2·78	36·8	—	·27	2·68
·8	·27	—	—	—	—	—	—
1·1	·27	·27	·17	·3	·55	—	—
105·6	·27	1·65	3·84	100·8	·55	1·10	3·77
—	—	—	—	—	—	—	—
2·2	—	—	·06	3·8	—	—	·09
—	—	—	—	—	—	—	—
664·4	6·87	15·40	33·01	706·9	4·67	10·16	33·75

for the two years, 1886 to 1887, will be given in the Report for 1888; those for the three that for 1889, &c., &c.

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ABSTRACT C.—TABLE showing the AVERAGE STRENGTH, ADMISSIONS among the TROOPS stationed in IRELAND during the

Average Strength, 25,150. Diseases.	Admissions into Hospital.	Died. With the Regiment.	Died. Absent from Regiment.	Died. Total.	Invalids Discharged the Service.	Average Number constantly Sick.
I.—GENERAL DISEASES.						
GROUP "A."						
Sub-Group I. Small-pox	1	—	—	—	—	·11
Other Eruptive Fevers	108	1	—	1	—	6·22
Enteric Fever	73	9	1	10	—	11·26
Other Continued Fevers	294	—	—	—	—	8·98
Yellow Fever	—	—	—	—	—	—
Cholera	—	—	—	—	—	—
Dysentery	4	—	1	1	—	·30
Other Diseases	27	—	—	—	—	·60
Total	507	10	2	12	—	27·47
Sub-Group II.—Malarial Fevers	49	—	—	—	—	1·33
Sub-Group III.—Septic Diseases	53	—	—	—	—	2·54
Sub-Group IV. Syphilis, Primary	1,656	—	—	—	—	146·06
„ Secondary	862	1	—	1	15	71·87
Gonorrhœa	2,375	—	—	—	2	140·68
Total	4,893	1	—	1	17	358·61
Sub-Group V.—Hydrophobia, &c.	—	—	—	—	—	—
GROUP "B."						
Sub-Group I.—Parasitic Diseases	15	—	—	—	—	·35
Sub-Group II. Scurvy	9	—	—	—	—	·57
Alcoholism	80	—	—	—	—	2·02
GROUP "C."						
Debility, &c.	137	1	—	1	16	8·83
GROUP "D."						
Rheumatism	920	1	—	1	11	54·79
Tubercular Diseases	76	21	2	23	40	15·32
Other Diseases	133	—	—	—	2	8·94
II.—LOCAL DISEASES.						
Diseases of the—						
1. Nervous System Nervous Diseases	167	9	1	10	29	12·88
Mental „	53	1	—	1	30	9·36
2. Eye	322	—	—	—	16	17·93
3 & 4. Other Organs of Special Senses	158	—	—	—	14	9·69
5. Circulatory System	171	9	—	9	62	18·10
6. Respiratory „	1,243	29	2	31	15	67·82
7. Digestive „	2,292	10	1	11	18	66·23
8. Lymphatic and Glandular System	528	—	—	—	2	57·34
9. Urinary System	39	5	2	7	3	2·48
10. Generative „	1,162	1	—	1	3	70·45
11. Organs of Locomotion	198	—	—	—	16	16·41
12. Connective Tissue	592	—	—	—	1	26·37
13. Skin	1,858	—	—	—	6	71·32
III.—POISONS	2	—	—	—	—	·05
IV.—INJURIES.						
1. General	6	12	—	12	1	·16
2. Local	2,535	8	—	8	15	100·79
3. In Action	—	—	—	—	—	—
No appreciable disease	55	—	—	—	—	1·93
Cause unknown (refers to deaths only)	—	—	—	—	—	—
General Total	18,253	118	10	128	317	1,030·08

* The average ratios for 10 years will be given in future years. The average ratios for 1886 to 1888, in

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into HOSPITAL, DEATHS, NUMBERS INVALIDED and CONSTANTLY SICK Year 1887, with the Ratios per 1,000 of the Strength.

	Ratio per 1,000.				* Ratio per 1,000 for 1886.			
	Admissions.	Deaths.	Invalids Discharged the Service.	Constantly Sick.	Admissions.	Deaths.	Invalids Discharged the Service.	Constantly Sick.
	—	—	—	—	—	—	—	·01
	4·3	·04	—	·25	3·8	—	—	·17
	2·9	·40	—	·45	2·1	·94	—	·26
	11·7	—	—	·36	13·4	—	—	·49
	—	—	—	—	—	—	—	—
	—	—	—	—	—	—	—	—
	·2	·04	—	·01	·6	·04	·13	·07
	1·1	—	—	·02	2·5	—	—	·07
	20·2	·48	—	1·09	22·4	·98	·13	1·07
	1·9	—	—	·05	3·9	—	·04	·11
	2·1	—	—	·10	2·2	·04	·09	·13
	65·8	—	—	5·81	79·6	—	—	6·73
	34·3	·04	·60	3·86	32·1	·04	·64	2·60
	94·4	—	·08	5·59	121·5	—	—	7·16
	194·5	·04	·68	14·26	233·2	·04	·64	16·49
	—	—	—	—	—	—	—	—
	·6	—	—	·01	·5	—	—	·01
	·4	—	—	·02	—	—	—	—
	3·2	—	—	·08	3·3	·09	—	·08
	5·4	·04	·64	·35	7·4	—	1·67	·50
	36·6	·04	·44	2·18	37·5	—	·68	2·11
	3·9	·91	1·59	·61	4·0	1·33	1·50	·66
	5·3	—	·08	·36	4·9	04	·13	·30
	6·6	·40	1·15	·51	7·8	·38	1·45	·56
	2·1	·04	1·19	·37	2·1	—	1·03	·35
	12·8	—	·64	·71	13·4	—	·47	·78
	6·3	—	·56	·38	7·1	—	·73	·37
	6·8	·36	2·46	·72	7·1	·60	2·48	·69
	49·4	1·23	·60	2·70	70·2	1·50	1·11	3·47
	91·1	·44	·71	2·63	93·1	·21	·86	2·67
	21·0	—	·08	2·28	23·7	—	·04	2·08
	1·6	·28	·12	·10	2·3	·13	·26	·19
	46·2	·04	·12	2·80	48·9	·04	·17	2·52
	7·9	—	·64	·66	5·6	·04	·94	·50
	23·5	—	·04	1·05	22·2	—	·13	·94
	73·9	—	·23	2·84	84·5	—	·21	3·23
	·1	—	—	—	—	·04	—	—
	·2	·48	·04	·01	·3	·30	·04	·01
	100·8	·32	·60	4·01	95·8	·60	·73	3·89
	—	—	—	—	—	—	·04	—
	2·2	—	—	·08	2·7	—	—	·06
	—	—	—	—	—	—	—	—
	725·7	5·09	12·60	40·96	806·1	6·37	15·57	43·78

the two years, 1886 to 1887, will be given in the Report for 1888; those for the three years, that for 1889, &c., &c.

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ABSTRACT D.—TABLE showing the AVERAGE STRENGTH, SICKNESS, UNITED KINGDOM in 1887, with

Average Strength.	Officers, 3,870.			
Diseases.	Attacks of Illness.	Deaths.	Ratios per 1,000. Attacks.	Ratios per 1,000. Deaths.
I.—GENERAL DISEASES.				
GROUP "A."				
Sub-Group I. Small-pox	—	—	—	—
Other Eruptive Fevers	30	—	7·8	—
Enteric Fever	11	1	2·8	·26
Other Continued Fevers	32	—	8·3	—
Yellow Fever	—	—	—	—
Cholera	—	—	—	—
Dysentery	7	—	1·8	—
Other Diseases	18	—	4·6	—
Total	98	1	25·3	·26
Sub-Group II.—Malarial Fevers	61	—	15·8	—
Sub-Group III.—Septic Diseases	6	—	1·6	—
Sub-Group IV. Syphilis, Primary	3	—	·8	—
„ Secondary	4	—	1·0	—
Gonorrhœa	34	—	8·8	—
Total	41	—	10·6	—
Sub-Group V.—Hydrophobia, &c.	—	—	—	—
GROUP "B."				
Sub-Group I.—Parasitic Diseases	2	—	·5	—
Sub-Group II. Scurvy	—	—	—	—
Alcoholism	1	—	·3	—
GROUP "C."				
Debility, &c.	24		6·2	·52
GROUP "D."				
Rheumatism	67	—	17·3	—
Tubercular Diseases	1	—	·3	—
Other Diseases	2	1	·5	·26
II.—LOCAL DISEASES.				
Diseases of the—				
1. Nervous System Nervous Diseases	28	2	7·2	·52
Mental „	—	—	—	—
2. Eye	11	—	2·8	—
3 & 4. Other Organs of Special Senses	6	—	1·6	—
5. Circulatory System	10	3	2·6	·77
6. Respiratory „	161	5	41·6	1·29
7. Digestive „	257	—	66·4	—
8. Lymphatic and Glandular System	23	—	5·9	—
9. Urinary System	16	1	4·1	·26
10. Generative „	17	—	4·4	—
11. Organs of Locomotion	23	—	5·9	—
12. Connective Tissue	28	—	7·2	—
13. Skin	55	—	14·2	—
III.—POISONS	3	—	·8	—
IV.—INJURIES.				
1. General	—	—	—	—
2. Local	254	2	65·6	·52
3. In Action	—	—	—	—
No appreciable disease	—	—	—	—
Cause unknown (refers to deaths only)	—	—	—	—
General Total	1,195	17	308·7	4·39

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and MORTALITY among the OFFICERS, WOMEN, and CHILDREN in the the Ratios per 1,000 of the Strength.

Women, 10,287.				Children, 19,230.			
Attacks of Illness.	Deaths.	Ratios per 1,000.		Attacks of Illness.	Deaths.	Ratios per 1,000.	
		Attacks.	Deaths.			Attacks.	Deaths.
2	—	·2	—	5	—	·3	—
52	—	5·1	—	2,783	60	144·7	3·12
13	3	1·3	·29	18	3	·9	·16
28	—	2·7	—	122	1	6·3	·05
—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—
18	2	1·7	·19	28	1	1·5	·05
20	—	1·9	—	348	21	18·1	1·09
133	5	12·9	·48	3,304	86	171·	4·47
35	—	3·4	—	19	—	1·0	—
31	2	3·0	·19	15	3	·8	·16
—	—	—	—	—	—	—	—
10	—	1·0	—	20	2	1·0	·10
—	—	—	—	—	—	—	—
10	—	1·0	—	20	2	1·0	·10
—	—	—	—	—	—	—	—
7	—	·7	—	66	1	3·4	·05
—	—	—	—	—	—	—	—
1	—	·1	—	—	—	—	—
617	2	60·0	·19	463	62	24·1	3·22
225	1	21·9	·10	34	1	1·8	·05
57	14	5·5	1·36	52	29	2·7	1·51
50	3	4·9	·29	67	5	3·5	·26
207	4	20·1	·39	270	107	14·0	5·57
5	—	·5	—	—	—	—	—
19	—	1·8	—	137	—	7·1	—
7	—	·7	—	35	1	1·8	·05
48	5	4·7	·49	5	2	·3	·10
617	8	60·0	·78	2,248	129	116·9	6·71
363	7	35·9	·68	1,246	59	64·8	3·07
15	—	1·5	—	47	1	2·4	·05
14	1	1·4	·10	12	3	·6	·16
448	4	43·5	·39	16	—	·8	—
19	—	1·8	—	28	3	1·5	·16
79	—	7·7	—	105	—	5·5	—
99	1	9·6	·10	512	2	26·6	·10
—	—	—	—	2	—	·1	—
1	—	·1	—	4	4	·2	·21
65	—	6·3	—	302	2	15·7	·10
—	—	—	—	—	—	—	—
—	—	—	—	1	—	·1	—
—	—	—	—	—	—	—	—
3,672	57	357·0	5·54	9,010	502	468·5	26·10

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ABSTRACT No. II.—TABLE showing the AVERAGE STRENGTH, ADMISSIONS the TROOPS stationed at GIBRALTAR during the Year 1887, with the Ratios

Average Strength, 4,614. Diseases.	Admissions into Hospital.	Deaths. In the Command.	Deaths. Of Invalids.	Deaths. Total.	Invalids. Number sent Home.	Invalids. Number finally Discharged the Service.	Average Number constantly Sick.
I.—GENERAL DISEASES.							
GROUP "A."							
Sub-Group I. Small-pox	—	—	—	—	—	—	—
Other Eruptive Fevers	5	—	—	—	—	—	·29
Enteric Fever	35	9	—	9	6	—	4·92
Other Continued Fevers	105	—	—	—	37	—	14·52
Yellow Fever	—	—	—	—	—	—	—
Cholera	—	—	—	—	—	—	—
Dysentery	—	—	—	—	—	—	—
Other Diseases	—	—	—	—	—	—	—
Total	145	9	—	9	43	—	19·73
Sub-Group II.—Malarial Fevers	3	—	—	—	1	—	·19
Sub-Group III.—Septic Diseases	5	1	—	1	—	—	·22
Sub-Group IV. Syphilis, Primary	85	—	—	—	—	—	7·60
" Secondary	182	1	—	1	5	4	12·54
Gonorrhœa	505	—	—	—	—	—	28·43
Total	772	1	—	1	5	4	48·57
Sub-Group V.—Hydrophobia, &c.	—	—	—	—	—	—	—
GROUP "B."							
Sub-Group I.—Parasitic Diseases	1	—	—	—	—	—	·01
Sub-Group II. Scurvy	—	—	—	—	—	—	—
Alcoholism	39	1	—	1	—	—	·82
GROUP "C."							
Debility, &c.	13	—	—	—	8	5	1·08
GROUP "D."							
Rheumatism	111	—	—	—	10	3	6·08
Tubercular Diseases	20	1	2	3	14	6	3·11
Other Diseases	8	1	—	1	1	2	·79
II.—LOCAL DISEASES.							
Diseases of the—							
1. Nervous System Nervous Diseases	6	—	—	—	2	3	·28
Mental	1	—	—	—	1	2	·13
2. Eye	49	—	—	—	—	—	3·09
3 & 4. Other Organs of Special Senses	29	—	—	—	3	3	1·41
5. Circulatory System	2	—	1	1	2	1	·15
6. Respiratory "	135	3	1	4	2	1	5·12
7. Digestive "	359	1	—	1	1	—	7·16
8. Lymphatic and Glandular System	39	—	—	—	—	—	4·30
9. Urinary System	5	2	1	3	1	—	·28
10. Generative	587	—	—	—	—	1	45·79
11. Organs of Locomotion	8	1	—	1	2	1	·69
12. Connective Tissue	74	—	—	—	—	1	2·94
13. Skin	185	—	—	—	—	—	4·27
III.—POISONS	—	—	—	—	—	—	—
IV.—INJURIES.							
1. General	—	—	—	—	—	—	—
2. Local	493	3	—	3	2	—	19·17
3. In Action	—	—	—	—	—	—	—
No appreciable disease	23	—	—	—	—	—	·44
Cause unknown (refers to deaths only)	—	—	—	—	—	—	—
General Total	3,111	24	5	29	96	33	175·77
* Average of 10 years, 1877–86	—	—	—	—	—	—	—

† The average ratios for 10 years will be given in future years. The average ratios for the two 1886 to 1888 in

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into HOSPITAL, DEATHS, NUMBERS INVALIDED and CONSTANTLY SICK among per 1,000 of the Strength, and the Average Ratios for 10 Years.*

Ratio per 1,000.					Ratios per 1,000 for 1886.†				
Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged.	Constantly Sick.	Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged.	Constantly Sick.
—	—	—	—	—	—	—	—	—	—
1·1	—	—	—	·06	·2	—	—	—	·03
7·6	1·95	1·30	—	1·07	36·7	6·04	13·47	—	6·00
22·7	—	8·02	—	3·15	40·2	—	2·32	—	4·85
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	·01
—	—	—	—	—	—	—	—	—	—
31·4	1·95	9·32	—	4·28	77·1	6·04	15·79	—	10·89
·7	—	·22	—	·04	5·2	—	—	·23	·11
1·1	·22	—	—	·05	1·2	—	—	—	·06
18·4	—	—	—	1·65	61·8	—	—	—	5·69
39·4	·22	1·08	·86	2·72	38·7	—	·70	—	2·14
109·5	—	—	—	6·16	151·8	—	—	—	7·75
167·3	·22	1·08	·86	10·53	247·8	—	·70	—	15·58
—	—	—	—	—	—	—	—	—	—
·2	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—
8·5	·22	—	—	·18	8·1	—	—	—	·20
2·8	—	1·73	1·08	·23	8·4	—	4·87	1·86	·57
24·1	—	2·17	·65	1·31	42·7	—	1·39	·70	2·67
4·3	·65	3·04	1·30	·67	2·8	·46	1·86	1·16	·19
1·7	·23	·22	·43	·17	1·2	·46	—	·23	·06
1·3	—	·43	·65	·06	·2	—	—	·23	·00
·2	—	·22	·43	·03	·7	—	·70	·46	·13
10·6	—	—	—	·67	13·7	—	—	—	·44
6·3	—	·65	·65	·31	9·7	—	—	—	·44
·4	·22	·43	·22	·03	·4	·46	·23	·70	·02
29·3	·86	·43	·22	1·11	37·8	·23	·23	·46	1·55
77·8	·22	·22	—	1·55	77·8	·23	·70	·46	2·09
8·5	—	—	—	·93	16·2	—	—	—	1·96
1·1	·65	·22	—	·06	—	·46	—	—	—
127·2	—	—	·22	9·92	134·7	—	—	—	6·69
1·7	·22	·43	·22	·15	·7	—	·23	—	·03
16·0	—	—	·22	·84	12·3	—	—	·23	·62
40·1	—	—	—	·92	33·7	—	—	—	·93
—	—	—	—	—	·2	·23	—	—	—
—	—	—	—	—	·2	·23	—	—	—
106·8	·65	·43	—	4·15	114·5	·70	·23	·23	3·78
—	—	—	—	—	—	—	—	—	—
4·8	—	—	—	·10	1·9	—	—	—	·06
—	—	—	—	—	—	—	—	—	—
674·2	6·29	21·24	7·15	38·09	843·7	9·51	26·93	6·96	49·07
833·9	7·06	33·37	14·11	49·84	—	—	—	—	—

years 1886 to 1887 will be given in the Report for 1888; those for the three years that for 1889, &c., &c.

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ABSTRACT No. III.—TABLE showing the AVERAGE STRENGTH, ADMISSIONS the TROOPS stationed at MALTA during the Year 1887, with the Ratios

Average Strength, 5,499. Diseases.	Admissions into Hospital.	Deaths. In the Command.	Deaths. Of Invalids.	Deaths. Total.	Invalids. Number sent Home.	Invalids. Number finally Discharged the Service.	Average Number Constantly Sick.
I.—GENERAL DISEASES.							
GROUP "A."							
Sub-Group I. Small-pox	2	—	—	—	—	—	·20
Other Eruptive Fevers	1	—	—	—	—	—	—
Enteric Fever	14	5	—	5	—	—	2·58
Other Continued Fevers	570	7	—	7	9	—	54·12
Yellow Fever	—	—	—	—	—	—	—
Cholera	1	1	—	1	—	—	—
Dysentery	19	2	—	2	1	—	1·67
Other Diseases	2	—	—	—	—	—	·03
Total	609	15	—	15	10	—	58·60
Sub-Group II.—Malarial Fevers	22	5	—	5	—	—	2·24
Sub-Group III.—Septic Diseases	2	—	—	—	—	—	·03
Sub-Group IV. Syphilis, Primary	35	—	—	—	—	—	6·57
" Secondary	43	—	—	—	2	—	4·47
Gonorrhœa	193	—	—	—	—	—	13·19
Total	321	—	—	—	2	—	24·23
Sub-Group V.—Hydrophobia, &c.	—	—	—	—	—	—	—
GROUP "B."							
Sub-Group I.—Parasitic Diseases	8	—	—	—	—	—	·21
Sub-Group II. Scurvy	—	—	—	—	—	—	—
Alcoholism	15	—	—	—	—	—	·59
GROUP "C."							
Debility, &c.	71	—	—	—	9	5	6·59
GROUP "D."							
Rheumatism	160	—	—	—	3	3	10·27
Tubercular Diseases	13	2	2	4	9	6	1·87
Other Diseases	15	—	—	—	1	2	1·06
II.—LOCAL DISEASES.							
Diseases of the—							
1. Nervous System Nervous Diseases	23	—	—	—	3	3	1·73
Mental "	7	—	—	—	5	6	1·45
2. Eye	47	—	—	—	2	1	2·80
3 & 4. Other Organs of Special Senses	45	—	—	—	1	1	2·07
5. Circulatory System	29	1	—	1	5	5	2·83
6. Respiratory "	85	3	2	5	9	4	8·23
7. Digestive "	468	2	—	2	3	1	17·27
8. Lymphatic and Glandular System	35	—	—	—	—	—	3·38
9. Urinary System	9	—	—	—	—	—	·95
10. Generative "	172	—	—	—	—	—	14·07
11. Organs of Locomotion	34	—	—	—	—	—	3·51
12. Connective Tissue	150	—	—	—	—	—	5·87
13. Skin	186	—	—	—	—	—	8·77
III.—POISONS.							
IV.—INJURIES.							
1. General	3	4	—	4	—	—	·13
2. Local	476	—	—	—	3	2	18·79
3. In Action	—	—	—	—	—	—	—
No appreciable disease	6	—	—	—	—	—	·09
Cause unknown (refers to deaths only)	—	—	—	—	—	—	—
General Total	3,011	32	4	36	65	39	197·63
*Average of 10 years, 1877-86	—	—	—	—	—	—	—

† The average ratios for 10 years will be given in future years. The average ratios for the two 1886 to 1888 in

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into HOSPITAL, DEATHS, NUMBERS INVALIDED and CONSTANTLY SICK among per 1,000 of the Strength, and the Average Ratios for 10 Years.*

	Ratio per 1,000.					Ratios per 1,000 for 1886.†				
	Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged.	Constantly Sick.	Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged.	Constantly Sick.
	·4	—	—	—	·04	—	—	—	—	—
	·2	—	—	—	—	—	—	—	—	—
	2·5	·91	—	—	·47	7·2	1·69	·63	—	2·61
	103·6	1·27	1·64	—	9·84	154·1	·42	1·48	—	11·62
	—	—	—	—	—	—	—	—	—	—
	·2	·18	—	—	—	—	—	—	—	—
	3·4	·36	·18	—	·30	11·2	·63	—	—	·79
	·4	—	—	—	·01	·8	·21	—	—	·05
	110·7	2·72	1·82	—	10·66	173·3	2·95	2·11	—	15·07
	4·0	·91	—	—	·41	2·3	·21	·63	—	·42
	·4	—	—	—	·01	·2	—	—	—	·03
	15·5	—	—	—	1·19	18·8	—	—	—	1·62
	7·8	—	·36	—	·81	14·5	—	·21	—	·97
	35·1	—	—	—	2·40	54·9	—	—	—	3·58
	58·4	—	·36	—	4·40	88·2	—	·21	—	6·17
	—	—	—	—	—	—	—	—	—	—
	1·4	—	—	—	·04	1·3	—	—	—	·03
	—	—	—	—	—	—	—	—	—	—
	2·7	—	—	—	·11	4·2	—	·21	—	·13
	12·9	—	1·64	·91	1·20	17·5	—	1·27	·63	1·66
	29·1	—	·54	·54	1·87	34·0	—	·63	·84	2·74
	2·4	·73	1·64	1·09	·34	2·5	1·27	2·32	1·48	·50
	2·7	—	·18	·36	·29	2·5	—	·21	·21	·21
	4·2	—	·54	·54	·31	5·3	·21	·63	1·69	·30
	1·3	—	·91	1·09	·26	1·1	·31	1·06	1·90	·27
	8·5	—	·36	·18	·51	18·6	—	·21	·21	·36
	8·2	—	·18	·18	·38	9·5	—	—	—	·44
	5·3	·18	·91	·91	·51	13·5	·21	2·32	3·17	1·26
	15·5	·91	1·64	·73	1·50	29·6	·63	1·06	·84	2·50
	85·1	·36	·54	·18	3·14	97·8	·42	1·27	·21	3·49
	6·4	—	—	—	·61	6·1	—	·31	—	·62
	1·6	—	—	—	·17	1·3	—	·21	—	·13
	31·2	—	—	—	2·56	28·9	—	·42	·21	1·65
	6·2	—	—	—	·64	4·4	·21	—	·63	·23
	27·3	—	—	—	1·07	36·1	—	·21	—	1·34
	33·8	—	—	—	1·59	48·8	—	·63	—	2·36
	·5	·73	—	—	·02	·2	·42	—	—	·02
	86·5	—	·54	·36	3·42	96·9	·42	·42	·42	3·70
	—	—	—	—	—	—	—	—	—	—
	1·1	—	—	—	·02	1·1	—	—	—	·07
	—	—	—	—	—	—	—	—	—	—
	547·5	6·54	11·82	7·09	35·94	725·2	7·17	16·25	12·45	46·62
	850·2	9·94	28·26	15·18	51·13	—	—	—	—	—

years 1886 to 1887 will be given in the Report for 1888; those for the three years that for 1889, &c., &c.

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ABSTRACT No. IIIA.—TABLE showing the AVERAGE STRENGTH, ADMIS- among the ROYAL MALTA FENCIBLE ARTILLERY stationed at MALTA average Ratios for 10 Years.*

Average Strength, 360. Diseases.	Admissions into Hospital.	Deaths. In the Command.	Deaths. Of Invalids.	Deaths. Total.	Invalids. Number sent Home.	Invalids. Number finally Discharged the Service.	Average Number Constantly Sick.
I.—GENERAL DISEASES.							
GROUP "A."							
Sub-Group I. Small-pox	—	—	—	—	—	—	—
Other Eruptive Fevers	—	—	—	—	—	—	—
Enteric Fever	—	—	—	—	—	—	—
Other Continued Fevers	22	—	—	—	—	—	·88
Yellow Fever	—	—	—	—	—	—	—
Cholera	1	1	—	1	—	—	—
Dysentery	—	—	—	—	—	—	—
Other Diseases	—	—	—	—	—	—	—
Total	23	1	—	1	—	—	·88
Sub-Group II.—Malarial Fevers	1	—	—	—	—	—	·02
Sub-Group III.—Septic Diseases	—	—	—	—	—	—	—
Sub-Group IV. Syphilis, Primary	2	—	—	—	—	—	·24
„ Secondary	1	—	—	—	—	—	·07
Gonorrhœa	14	—	—	—	—	—	·91
Total	17	—	—	—	—	—	1·22
Sub-Group V.—Hydrophobia, &c.	—	—	—	—	—	—	—
GROUP "B."							
Sub-Group I.—Parasitic Diseases	—	—	—	—	—	—	—
Sub-Group II. Scurvy	—	—	—	—	—	—	—
Alcoholism	—	—	—	—	—	—	—
GROUP "C."							
Debility, &c.	10	—	—	—	—	1	·39
GROUP "D."							
Rheumatism	9	—	—	—	—	—	·55
Tubercular Diseases	—	—	—	—	—	—	—
Other Diseases	4	—	—	—	—	—	·19
II.—LOCAL DISEASES.							
Diseases of the—							
1. Nervous System Nervous Diseases	—	—	—	—	—	—	—
Mental „	—	—	—	—	—	—	—
2. Eye	13	—	—	—	—	1	·73
3 & 4. Other Organs of Special Senses	5	—	—	—	—	1	·27
5. Circulatory System	1	—	—	—	—	1	·33
6. Respiratory „	22	—	—	—	—	1	·89
7. Digestive „	37	—	—	—	—	1	·66
8. Lymphatic and Glandular System	—	—	—	—	—	—	—
9. Urinary System	2	—	—	—	—	—	·06
10. Generative „	2	—	—	—	—	—	·04
11. Organs of Locomotion	6	—	—	—	—	2	·55
12. Connective Tissue	8	—	—	—	—	—	·21
13. Skin	35	—	—	—	—	—	·92
III.—POISONS.							
IV.—INJURIES.							
1. General	—	—	—	—	—	—	—
2. Local	43	—	—	—	—	—	1·13
3. In Action	—	—	—	—	—	—	—
No appreciable disease	—	—	—	—	—	—	—
Cause unknown (refers to deaths only)	—	—	—	—	—	—	—
General Total	238	1	—	1	—	8	9·06
* Average of 10 years, 1877–86	—	—	—	—	—	—	—

† The average ratios for 10 years will be given in future years. The average ratios for the two 1886 to 1888 in

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SIONS into HOSPITAL, DEATHS, NUMBERS INVALIDED and CONSTANTLY SICK during the Year 1887, with the Ratios per 1,000 of the Strength and the

Ratio per 1,000.					Ratios per 1,000 for 1886.†				
Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged.	Constantly Sick.	Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged.	Constantly Sick.
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—
61·1	—	—	—	2·44	108·1	—	—	—	2·80
—	—	—	—	—	—	—	—	—	—
2·8	2·78	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—
63·9	2·78	—	—	2·44	108·1	—	—	—	2·80
2·8	—	—	—	·05	2·8	—	—	—	—
—	—	—	—	—	—	—	—	—	·06
5·6	—	—	—	·67	16·7	—	—	—	1·28
2·8	—	—	—	·19	8·4	—	—	2·78	1·14
33·8	—	—	—	2·53	16·7	—	—	—	·97
47·2	—	—	—	3·39	41·8	—	—	2·78	3·39
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—
27·8	—	—	2·78	1·68	5·6	—	—	2·78	·17
25·0	—	—	—	1·53	30·6	—	—	—	·94
—	—	—	—	—	2·8	—	—	2·78	·92
11·1	—	—	—	·53	11·1	—	—	—	·53
—	—	—	—	—	8·4	—	—	—	·17
—	—	—	—	—	—	—	—	—	—
36·1	—	—	2·78	2·03	13·9	—	—	—	·45
13·8	—	—	2·78	·75	2·8	—	—	—	—
2·8	—	—	2·78	·92	8·4	—	—	2·78	·45
61·1	—	—	2·78	2·47	105·9	—	—	—	5·24
102·8	—	—	2·78	1·89	111·2	—	—	—	2·26
—	—	—	—	—	—	—	—	—	—
5·6	—	—	—	·17	—	—	—	—	—
5·6	—	—	—	·11	5·6	—	—	—	·06
16·7	—	—	5·55	1·53	—	—	—	—	—
22·2	—	—	—	·58	13·9	—	—	—	·44
97·2	—	—	—	2·55	86·4	—	—	—	2·63
—	—	—	—	—	—	—	—	—	—
119·4	—	—	—	3·14	150·4	—	—	2·78	4·21
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	2·8	—	—	—	·11
—	—	—	—	—	—	—	—	—	—
661·1	2·78	—	22·22	25·16	707·5	—	—	13·92	24·84
669·3	5·79	—	17·10	24·51	—	—	—	—	—

years 1886 to 1887 will be given in the Report for 1888; those for the three years that for 1889, &c., &c.

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ABSTRACT No. IV.—TABLE showing the AVERAGE STRENGTH, ADMISSIONS the TROOPS stationed at CYPRUS during the Year 1887, with the Ratios

Average Strength, 472. Diseases.	Admissions into Hospital.	Deaths. In the Command.	Deaths. Of Invalids.	Deaths. Total.	Invalids. Number sent Home.	Invalids. Number finally Discharged the Service.	Average Number Constantly Sick.
I.—GENERAL DISEASES.							
GROUP "A."							
Sub-Group I. Small-pox	—	—	—	—	—	—	—
Other Eruptive Fevers	—	—	—	—	—	—	—
Enteric Fever	3	1	—	1	2	—	·80
Other Continued Fevers	20	—	—	—	—	—	·92
Yellow Fever	—	—	—	—	—	—	—
Cholera	—	—	—	—	—	—	—
Dysentery	11	—	—	—	—	—	·50
Other Diseases	—	—	—	—	—	—	—
Total	34	1	—	1	2	—	2·22
Sub-Group II.—Malarial Fevers	35	1	—	1	—	—	1·15
Sub-Group III.—Septic Diseases	1	—	—	—	—	—	·03
Sub-Group IV. Syphilis, Primary	20	—	—	—	—	—	2·11
„ Secondary	11	—	—	—	—	—	1·10
Gonorrhœa	57	—	—	—	—	—	2·62
Total	88	—	—	—	—	—	5·83
Sub-Group V.—Hydrophobia, &c.	—	—	—	—	—	—	—
GROUP "B."							
Sub-Group I.—Parasitic Diseases	1	—	—	—	—	—	·03
Sub-Group II. Scurvy	—	—	—	—	—	—	—
Alcoholism	4	—	—	—	—	—	·24
GROUP "C."							
Debility, &c.	3	—	—	—	—	1	·15
GROUP "D."							
Rheumatism	9	—	—	—	—	—	·38
Tubercular Diseases	—	—	—	—	—	—	—
Other Diseases	—	—	—	—	—	—	—
II.—LOCAL DISEASES.							
Diseases of the—							
1. Nervous System Nervous Diseases	—	—	—	—	2	2	·06
1. Nervous System Mental „	—	—	—	—	1	—	·03
2. Eye	8	—	—	—	—	—	·24
3 & 4. Other Organs of Special Senses	3	—	—	—	—	1	·22
5. Circulatory System	1	—	—	—	1	—	·60
6. Respiratory „	8	1	—	1	—	—	·25
7. Digestive „	35	—	—	—	—	—	1·22
8. Lymphatic and Glandular System	—	—	—	—	—	1	—
9. Urinary System	—	—	—	—	—	—	—
10. Generative „	6	—	—	—	—	—	·48
11. Organs of Locomotion	3	—	—	—	1	1	·12
12. Connective Tissue	20	—	—	—	1	—	1·34
13. Skin	23	—	—	—	—	—	·88
III.—POISONS.							
IV.—INJURIES.							
1. General	—	—	—	—	—	—	—
2. Local	52	—	—	—	1	1	2·11
3. In Action	—	—	—	—	—	—	—
No appreciable disease	1	—	—	—	—	—	·09
Cause unknown (refers to deaths only)	—	—	—	—	—	—	—
General Total	335	3	—	3	9	7	17·67
*Average of 9 years, 1878–86	—	—	—	—	—	—	—

† The average ratios for 10 years will be given in future years. The average ratios for years 1886 to 1888 in

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into HOSPITAL, DEATHS, NUMBERS INVALIDED and CONSTANTLY SICK among per 1,000 of the Strength and the average Ratios for 10 Years.*

Ratio per 1,000.					Ratios per 1,000 for 1886.†				
Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged.	Constantly Sick.	Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged.	Constantly Sick.
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	1·6	—	—	—	·20
6·4	2·12	4·24	—	1·70	17·3	7·86	3·14	—	3·30
42·4	—	—	—	1·95	153·6	—	—	—	3·88
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—
23·3	—	—	—	1·06	34·6	1·57	—	—	2·44
—	—	—	—	—	—	—	—	—	—
72·0	2·12	4·24	—	4·70	187·1	9·43	3·14	—	9·82
74·1	2·12	—	—	2·44	160·4	—	1·57	—	3·95
2·1	—	—	—	·06	4·7	—	—	—	·39
42·4	—	—	—	4·47	144·6	—	—	—	9·69
23·3	—	—	—	2·33	36·2	—	—	—	3·49
120·7	—	—	—	5·55	50·3	—	—	—	2·59
186·4	—	—	—	12·35	231·1	—	—	—	15·77
—	—	—	—	—	—	—	—	—	—
2·1	—	—	—	·06	4·7	—	—	—	·05
—	—	—	—	—	4·7	—	—	—	·33
8·5	—	—	—	·51	6·3	—	—	—	·52
6·4	—	—	2·12	·32	36·2	—	3·14	—	2·97
19·1	—	—	—	·81	28·3	—	—	—	1·40
—	—	—	—	—	1·6	—	—	—	·27
—	—	—	—	—	—	—	—	—	·03
—	—	4·24	4·24	·13	4·7	—	—	—	·22
—	—	2·12	—	·06	1·6	—	—	—	·23
17·0	—	—	—	·51	14·1	—	—	—	·88
6·4	—	—	2·12	·47	1·6	—	—	—	·02
2·1	—	2·12	—	1·27	1·6	1·57	—	—	·03
17·0	2·12	—	—	·53	17·3	—	—	—	·45
74·1	—	—	—	2·58	135·2	—	1·57	—	4·17
—	—	—	2·12	—	12·6	—	—	—	·52
—	—	—	—	—	—	—	—	—	—
12·7	—	—	—	1·02	18·9	—	—	—	·49
6·4	—	2·12	2·12	·25	9·4	—	1·57	—	·97
42·4	—	2·12	—	2·84	33·0	—	—	—	1·38
48·7	—	—	—	1·86	48·7	—	—	—	1·79
—	—	—	—	—	1·6	—	—	—	·05
110·2	—	2·12	2·12	4·47	106·9	—	—	—	4·12
—	—	—	—	—	—	—	—	—	—
2·1	—	—	—	·19	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—
709·8	6·36	19·07	14·83	37·43	1072·3	11·00	11·00	—	50·81
1538·5	17·31	41·19	13·67	72·17	—	—	—	—	—

the two years 1886 to 1887 will be given in the Report for 1888; those for the three that for 1889, &c., &c.

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ABSTRACT No. V.—TABLE showing the AVERAGE STRENGTH, ADMISSIONS the TROOPS stationed in CANADA during the Year 1887, with the

Average Strength, 1,282. Diseases.	Admissions into Hospital.	Deaths. In the Command.	Deaths. Of Invalids.	Deaths. Total.	Invalids. Number sent Home.	Invalids. Number finally Discharged the Service.	Average Number Constantly Sick.
I.—GENERAL DISEASES.							
GROUP "A."							
Sub-Group I. Small-pox	—	—	—	—	—	—	—
Other Eruptive Fevers	5	—	—	—	—	—	·12
Enteric Fever	1	—	—	—	—	—	·25
Other Continued Fevers	—	—	—	—	—	—	—
Yellow Fever	—	—	—	—	—	—	—
Cholera	—	—	—	—	—	—	—
Dysentery	—	—	—	—	—	—	—
Other Diseases	—	—	—	—	—	—	—
Total	6	—	—	—	—	—	·37
Sub-Group II.—Malarial Fevers	1	—	—	—	—	—	·01
Sub-Group III.—Septic Diseases	7	—	—	—	—	—	·44
Sub-Group IV. Syphilis, Primary	35	—	—	—	—	—	2·35
" Secondary	46	—	—	—	1	1	4·25
Gonorrhœa	101	—	—	—	—	—	5·68
Total	182	—	—	—	1	1	12·28
Sub-Group V.—Hydrophobia, &c.	—	—	—	—	—	—	—
GROUP "B."							
Sub-Group I.—Parasitic Diseases	2	—	—	—	—	—	·03
Sub-Group II. Scurvy	—	—	—	—	—	—	—
Alcoholism	1	—	—	—	—	—	·09
GROUP "C."							
Debility, &c.	6	—	—	—	—	—	·37
GROUP "D."							
Rheumatism	72	—	—	—	1	1	4·84
Tubercular Diseases	—	—	—	—	—	—	—
Other Diseases	—	—	—	—	—	—	—
II.—LOCAL DISEASES.							
Diseases of the— 1. Nervous System Nervous Diseases	20	1	—	1	3	2	1·07
Mental "	—	—	—	—	—	—	—
2. Eye	10	—	—	—	—	—	·37
3 & 4. Other Organs of Special Senses	10	—	—	—	1	1	1·00
5. Circulatory System	24	1	—	1	4	5	2·83
6. Respiratory "	74	1	—	1	2	1	4·28
7. Digestive "	123	1	—	1	1	—	3·16
8. Lymphatic and Glandular System	8	—	—	—	—	—	1·93
9. Urinary System	4	1	1	2	—	—	·74
10. Generative "	47	—	—	—	—	—	1·54
11. Organs of Locomotion	4	—	—	—	1	—	·87
12. Connective Tissue	27	—	—	—	—	—	1·12
13. Skin	59	—	—	—	—	—	3·03
III.—POISONS.							
IV.—INJURIES.							
1. General	3	1	—	1	—	—	·15
2. Local	109	—	—	—	—	—	4·84
3. In Action	—	—	—	—	—	—	—
No appreciable disease	3	—	—	—	—	—	·18
Cause unknown (refers to deaths only)	—	—	—	—	—	—	—
General Total	801	6	1	7	14	11	45·59
*Average of 10 years 1877–86	—	—	—	—	—	—	—

† The average ratios for 10 years will be given in future years. The average ratios for 1886 to 1888 in

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into HOSPITAL, DEATHS, NUMBERS INVALIDED and CONSTANTLY SICK among Ratios per 1,000 of the Strength, and the Average Ratios for 10 Years.*

Ratio per 1,000.					Ratios per 1,000 for 1886.†				
Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged.	Constantly Sick.	Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged.	Constantly Sick.
—	—	—	—	—	—	—	—	—	—
3·9	—	—	—	·09	·8	—	—	—	·06
·8	—	—	—	·20	—	—	—	—	—
—	—	—	—	—	7·8	—	—	—	·41
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—
4·7	—	—	—	·29	8·6	—	—	—	·49
·8	—	—	—	·01	—	—	—	—	—
5·5	—	—	—	·34	4·7	—	—	—	·24
27·3	—	—	—	1·88	33·5	—	—	—	2·83
35·9	—	·78	·78	3·32	34·3	—	·78	—	3·09
78·8	—	—	—	4·43	79·5	—	—	—	3·65
142·0	—	·78	·78	9·58	147·3	—	·78	—	9·57
—	—	—	—	—	—	—	—	—	—
1·5	—	—	—	·02	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—
·8	—	—	—	·07	—	—	—	—	—
4·7	—	—	—	·29	3·1	—	3·90	·78	·16
56·2	—	·78	·78	3·78	35·8	—	—	—	2·10
—	—	—	—	—	—	—	—	1·56	—
—	—	—	—	—	·8	—	—	—	·04
15·6	·78	2·34	1·56	·83	10·1	—	1·56	1·56	·73
—	—	—	—	—	·8	—	·78	1·56	·13
7·8	—	—	—	·29	13·2	—	—	1·56	·69
7·8	—	·78	·78	·78	9·4	—	—	—	·43
18·7	·78	3·12	3·90	2·21	13·2	—	3·90	3·90	·94
57·7	·78	1·56	·78	3·33	36·6	1·56	3·11	3·11	3·88
95·9	·78	·78	—	2·46	87·3	—	—	—	2·09
6·2	—	—	—	1·51	19·5	—	—	—	·99
3·1	1·56	—	—	·58	3·9	—	·78	—	·34
36·7	—	—	—	1·20	23·4	—	—	—	1·11
3·1	—	·78	—	·68	10·1	—	·78	—	·46
21·1	—	—	—	·87	21·8	—	—	—	·81
46·1	—	—	—	2·40	54·6	—	·78	1·56	2·21
1·5	·78	—	—	·12	—	·78	—	—	—
85·0	—	—	—	3·78	80·3	—	1·56	—	2·73
—	—	—	—	—	—	—	—	—	—
2·3	—	—	—	·14	·8	—	—	—	·06
—	—	—	—	—	—	—	—	—	—
624·8	5·46	10·92	8·58	35·56	585·3	2·34	17·93	15·59	30·22
727·5	5·37	24·57	18·88	38·45	—	—	—	—	—

the two years 1886 to 1887 will be given in the Report for 1888; those for the three years that for 1889, &c., &c.

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ABSTRACT No. VI.—TABLE showing the AVERAGE STRENGTH, ADMISSIONS the TROOPS stationed at BERMUDA during the Year 1887, with the Ratios

Average Strength, 1,183. Diseases.	Admissions into Hospital.	Deaths. In the Command.	Deaths. Of Invalids.	Deaths. Total.	Invalids. Number sent Home.	Invalids. Number finally Discharged the Service.	Average Number constantly Sick.
I.—GENERAL DISEASES.							
GROUP "A."							
Sub-Group I. Small-pox	—	—	—	—	—	—	—
Other Eruptive Fevers	—	—	—	—	—	—	—
Enteric Fever	50	8	—	8	—	—	6·88
Other Continued Fevers	51	—	—	—	—	—	2·61
Yellow Fever	—	—	—	—	—	—	—
Cholera	—	—	—	—	—	—	—
Dysentery	1	—	—	—	—	—	·06
Other Diseases	—	—	—	—	—	—	—
Total	102	8	—	8	—	—	9·55
Sub-Group II.—Malarial Fevers	1	—	—	—	—	—	·01
Sub-Group III.—Septic Diseases	—	—	—	—	—	—	—
Sub-Group IV. Syphilis, Primary	18	—	—	—	—	—	1·11
„ Secondary	31	—	—	—	1	1	1·97
Gonorrhœa	31	—	—	—	—	—	1·78
Total	80	—	—	—	1	1	4·86
Sub-Group V.—Hydrophobia, &c.	—	—	—	—	—	—	—
GROUP "B."							
Sub-Group I.—Parasitic Diseases	—	—	—	—	—	—	—
Sub-Group II. Scurvy	—	—	—	—	—	—	—
Alcoholism	13	—	—	—	—	—	·39
GROUP "C."							
Debility, &c.	16	—	—	—	2	2	·81
GROUP "D."							
Rheumatism	31	—	—	—	1	1	2·01
Tubercular Diseases	4	—	2	2	3	3	·86
Other Diseases	10	—	—	—	2	—	·79
II.—LOCAL DISEASES.							
Diseases of the— 1. Nervous System Nervous Diseases	13	—	—	—	1	—	·81
1. Nervous System Mental „	1	—	—	—	—	2	·03
2. Eye	32	—	—	—	3	3	1·69
3 & 4. Other Organs of Special Senses	16	—	—	—	1	—	1·26
5. Circulatory System	36	—	1	1	10	9	2·94
6. Respiratory „	47	1	—	1	4	1	2·85
7. Digestive „	179	—	1	1	2	1	5·82
8. Lymphatic and Glandular System	16	—	—	—	1	1	1·21
9. Urinary System	—	—	—	—	—	—	—
10. Generative „	23	—	—	—	—	—	1·17
11. Organs of Locomotion	17	—	—	—	3	3	1·17
12. Connective Tissue	41	—	—	—	—	—	1·56
13. Skin	131	—	—	—	—	—	4·42
III.—POISONS	1	—	—	—	—	—	·01
IV.—INJURIES.							
1. General	1	1	—	1	—	—	·32
2. Local	141	1	—	1	1	—	5·18
3. In Action	—	—	—	—	—	—	—
No appreciable disease	5	—	—	—	—	—	·12
Cause unknown (refers to deaths only)	—	—	—	—	—	—	—
General Total	957	11	4	15	35	27	49·84
* Average of 10 years, 1877-86	—	—	—	—	—	—	—

† The average ratios for 10 years will be given in future years. The average ratios for 1856 to 1886 in

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into HOSPITAL, DEATHS, NUMBERS INVALIDED and CONSTANTLY SICK among per 1,000 of the Strength, and the Average Ratios for 10 Years.*

Ratio per 1,000.					Ratios per 1,000 for 1886.†				
Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged.	Constantly Sick.	Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged.	Constantly Sick.
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—
42·2	6·76	—	—	5·81	22·8	3·26	—	—	1·93
43·1	—	—	—	2·21	20·4	—	—	—	·79
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—
·9	—	—	—	·05	4·9	·81	—	—	·29
—	—	—	—	—	—	—	—	—	—
86·2	6·76	—	—	8·07	48·1	4·07	—	—	3·01
·9	—	—	—	·01	1·6	—	—	—	·02
—	—	—	—	—	—	—	—	—	—
15·2	—	—	—	·94	22·8	—	—	—	2·95
26·2	—	·85	·85	1·67	22·8	—	·81	·81	2·43
26·2	—	—	—	1·50	33·3	—	—	—	2·65
67·6	—	·85	·85	4·11	83·9	—	·81	·81	8·03
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—
11·0	—	—	—	·33	4·9	·81	—	—	·06
13·5	—	1·69	1·69	·68	19·5	—	3·26	·81	1·71
26·2	—	·85	·85	1·70	29·3	—	1·63	2·44	1·43
3·4	1·69	2·53	2·53	·73	2·4	·81	·81	1·63	·42
8·4	—	1·69	—	·67	3·3	—	—	—	·15
11·0	—	·85	—	·68	4·1	·81	—	—	·19
·9	—	—	1·69	·02	1·6	—	1·63	—	·26
27·0	—	2·53	2·53	1·45	8·2	—	·81	—	·68
13·5	—	·85	—	1·06	4·9	—	—	·81	·11
30·4	·85	3·45	7·60	2·49	11·4	·81	1·63	·81	·67
39·7	·85	3·38	·85	2·41	31·8	2·44	2·44	4·07	2·36
151·3	·85	1·69	·85	4·92	141·8	—	1·63	·81	4·88
15·5	—	·85	·85	1·02	28·5	—	—	·81	2·05
—	—	—	—	—	4·1	—	—	—	·15
19·4	—	—	—	·99	25·3	—	—	·81	1·13
14·4	—	2·53	2·53	·99	8·2	—	1·63	2·44	·69
34·7	—	—	—	1·32	13·9	—	—	—	·41
110·7	—	—	—	3·74	44·0	—	—	—	2·57
·9	—	—	—	·01	—	—	—	—	—
·9	·85	—	—	·27	—	·81	—	—	—
119·2	·85	·85	—	4·38	110·0	1·63	—	—	3·32
—	—	—	—	—	—	—	—	—	—
4·2	—	—	—	·10	5·7	—	—	—	·17
—	—	—	—	—	—	—	—	—	—
808·9	12·68	20·30	23·83	42·13	636·5	12·22	16·29	16·29	34·47
631·4	7·90	16·11	10·33	34·04	—	—	—	—	—

the two years 1886 to 1887 will be given in the Report for 1888; those for the three years that for 1889, &c., &c.

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ABSTRACT No. VII.—TABLE showing the AVERAGE STRENGTH, ADMISSIONS the WHITE TROOPS stationed in the WEST INDIES during the Year 1887, with

Average Strength, 1,121. Diseases.	Admissions into Hospital.	Deaths. In the Command.	Deaths. Of Invalids.	Deaths. Total.	Invalids. Number sent Home.	Invalids. Number finally Discharged the Service.	Average Number Constantly Sick.
I.—GENERAL DISEASES.							
GROUP "A."							
Sub-Group I. Small-pox	—	—	—	—	—	—	—
Other Eruptive Fevers	40	—	—	—	—	—	·88
Enteric Fever	14	7	—	7	—	—	1·25
Other Continued Fevers	123	—	—	—	—	—	4·06
Yellow Fever	—	—	—	—	—	—	—
Cholera	—	—	—	—	—	—	—
Dysentery	2	—	—	—	1	—	·19
Other Diseases	2	—	—	—	—	—	·03
Total	181	7	--	7	1	—	6·41
Sub-Group II.—Malarial Fevers	37	2	—	2	—	—	3·07
Sub-Group III.—Septic Diseases	1	—	—	—	—	—	·02
Sub-Group IV. Syphilis, Primary	29	—	—	—	—	—	2·02
" Secondary	19	1	—	1	1	—	2·67
Gonorrhœa	166	—	—	—	—	—	9·49
Total	214	1	—	1	1	—	14·18
Sub-Group V.—Hydrophobia, &c.	—	—	—	—	—	—	—
GROUP "B."							
Sub-Group I.—Parasitic Diseases	4	—	—	—	—	—	·09
Sub-Group II. Scurvy	—	—	—	—	—	—	—
Alcoholism	15	—	—	—	—	—	·28
GROUP "C."							
Debility, &c.	10	—	—	—	2	1	·87
GROUP "D."							
Rheumatism	43	—	—	—	—	2	2·15
Tubercular Diseases	4	—	—	—	2	2	·54
Other Diseases	10	—	—	—	—	—	·39
II.—LOCAL DISEASES.							
Diseases of the—							
1. Nervous System Nervous Diseases	14	—	—	—	2	1	·88
Mental "	—	—	—	—	—	—	—
2. Eye	20	—	—	—	—	—	·75
3 & 4. Other Organs of Special Senses	44	—	—	—	1	1	1·30
5. Circulatory System	9	—	—	—	2	2	·42
6. Respiratory "	48	—	—	—	1	1	1·50
7. Digestive "	112	1	—	1	—	—	2·50
8. Lymphatic and Glandular System	37	—	—	—	—	—	4·65
9. Urinary System	2	—	—	—	1	—	·11
10. Generative "	104	—	—	—	1	1	6·57
11. Organs of Locomotion	4	1	—	1	1	—	·78
12. Connective Tissue	36	—	—	—	—	—	·88
13. Skin	105	—	—	—	1	1	3·82
III.—POISONS	—	—	—	—	—	—	—
IV.—INJURIES.							
1. General	1	—	—	—	—	—	·16
2. Local	194	1	—	1	1	1	6·82
3. In Action	—	—	—	—	—	—	—
No appreciable disease	3	—	—	—	—	—	·03
Cause unknown (refers to deaths only)	—	—	—	—	—	—	—
General Total	1,252	13	—	13	17	13	59·17
*Average for 10 Years 1877-86	—	—	—	—	—	—	—

† The average ratios for 10 years will be given in future years. The average ratios for the 1886 to 1888 in that

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into HOSPITAL, DEATHS, NUMBERS INVALIDED and CONSTANTLY SICK among the Ratios per 1,000 of the Strength, and the Average Ratios for 10 Years.*

Ratio per 1,000.					Ratios per 1,000 for 1886.†				
Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged.	Constantly Sick.	Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged.	Constantly Sick.
—	—	—	—	—	—	—	—	—	—
35·7	—	—	—	·78	2·9	—	—	—	·06
12·5	6·25	—	—	1·12	1·0	·98	—	—	·07
109·7	—	—	—	3·62	229·4	·96	—	—	6·57
—	—	—	—	—	2·0	1·96	—	—	·07
—	—	—	—	—	—	—	—	—	—
1·8	—	·89	—	·17	15·7	1·96	—	—	·53
1·8	—	—	—	·03	—	—	—	—	—
161·5	6·25	·89	—	5·72	251·0	5·88	—	—	7·32
33·0	1·79	—	—	2·74	40·3	2·94	—	—	1·75
·9	—	—	—	·02	1·0	—	—	—	—
25·9	—	—	—	1·80	50·0	—	—	—	3·72
16·9	·89	·89	—	2·38	24·5	—	—	—	2·29
146·1	—	—	—	8·47	123·5	—	—	—	8·74
190·9	·89	·89	—	12·66	197·0	—	—	—	14·75
—	—	—	—	—	—	—	—	—	—
3·6	—	—	—	·08	1·0	—	—	—	·02
—	—	—	—	—	—	—	—	—	—
13·4	—	—	—	·25	11·8	—	—	—	·31
8·9	—	1·79	·89	·78	23·5	—	3·93	·98	·95
38·3	—	—	1·79	1·92	25·5	—	—	—	·95
3·6	—	1·79	1·79	·43	1·0	—	·98	—	·22
8·9	—	—	—	·35	3·9	—	—	—	·23
12·5	—	1·79	·89	·78	13·7	·98	1·96	1·96	1·15
—	—	—	—	—	—	—	—	·98	—
17·8	—	—	—	·67	15·7	—	—	—	·70
39·2	—	·89	·89	1·16	25·5	—	—	·98	·70
8·0	—	1·79	1·79	·37	13·7	—	2·94	2·94	1·19
42·8	—	·89	·89	1·34	42·2	1·96	—	·98	2·74
99·9	·89	—	—	2·23	99·0	—	—	—	2·23
33·0	—	—	—	4·15	62·7	—	—	·98	6·28
1·8	—	·89	—	·10	2·0	·98	—	—	·06
92·8	—	·89	·89	5·86	64·7	—	—	—	3·23
3·6	·89	·89	—	·69	9·8	—	2·94	·98	·83
32·1	—	—	—	·78	22·5	—	—	·98	1·06
96·7	—	·89	·89	3·41	87·2	—	—	—	3·14
—	—	—	—	—	1·0	—	—	—	·01
·9	—	—	—	·14	—	—	—	—	—
173·1	·89	·89	·89	6·06	150·0	1·96	·98	—	5·08
—	—	—	—	—	—	—	—	—	—
2·7	—	—	—	·03	3·9	—	—	—	·12
—	—	—	—	—	—	—	—	—	—
1116·9	11·60	15·17	11·60	52·78	1168·6	14·70	13·73	11·76	55·09
933·7	16·68	27·56	14·89	46·15	—	—	—	—	—

two years 1886 to 1887 will be given in the Report for 1888; those for the three years for 1889, &c., &c.

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ABSTRACT No. VIII.—Table showing the Average Strength, Admissions the Black Troops stationed in the West Indies during the Year 1887, with

Average Strength, 1,205. Diseases.	Admissions into Hospital.	Deaths. In the Command.	Deaths. Of Invalids.	Deaths. Total.	Invalids. Number sent Home.	Invalids. Number finally Discharged the Service.	Average Number Constantly Sick.
I.—GENERAL DISEASES.							
Group "A."							
Sub-Group I. Small-pox	—	—	—	—	—	—	·07
Other Eruptive Fevers	11	—	—	—	—	—	·80
Enteric Fever	—	—	—	—	—	—	—
Other Continued Fevers	184	1	—	1	—	—	6·72
Yellow Fever	—	—	—	—	—	—	—
Cholera	—	—	—	—	—	—	—
Dysentery	20	—	—	—	—	—	1·14
Other Diseases	34	—	—	—	—	—	·85
Total	249	1	—	1	—	—	9·58
Sub-Group II.—Malarial Fevers	109	3	—	3	—	2	3·24
Sub-Group III.—Septic Diseases	1	—	—	—	—	—	·01
Sub-Group IV. Syphilis, Primary	89	—	—	—	—	—	5·01
" Secondary	33	—	—	—	—	3	2·27
Gonorrhœa	240	—	—	—	—	—	13·74
Total	361	—	—	—	—	3	20·02
Sub-Group V.—Hydrophobia, &c.	—	—	—	—	—	—	—
Group "B."							
Sub-Group I.—Parasitic Diseases	2	—	—	—	—	—	·03
Sub-Group II. Scurvy	—	—	—	—	—	—	—
Alcoholism	—	—	—	—	—	—	—
Group "C."							
Debility, &c.	9	—	—	—	—	5	·33
Group "D."							
Rheumatism	75	—	—	—	—	6	4·44
Tubercular Diseases	10	3	—	3	—	13	1·96
Other Diseases	11	—	—	—	—	6	1·63
II.—LOCAL DISEASES.							
Diseases of the—							
1. Nervous System Nervous Diseases	13	—	—	—	—	4	·65
" Mental	1	—	—	—	—	2	·31
2. Eye	31	—	—	—	—	4	2·73
3 & 4. Other Organs of Special Senses	10	—	—	—	—	2	1·07
5. Circulatory System	25	—	—	—	—	10	2·61
6. Respiratory "	63	3	—	3	—	5	4·84
7. Digestive "	89	2	—	2	—	5	2·43
8. Lymphatic and Glandular System	65	—	—	—	—	1	4·56
9. Urinary System	1	—	—	—	—	2	·21
10. Generative "	260	—	—	—	—	1	20·20
11. Organs of Locomotion	19	—	—	—	—	7	1·56
12. Connective Tissue	28	—	—	—	—	1	1·49
13. Skin	61	—	—	—	—	—	1·89
III.—POISONS	—	—	—	—	—	—	—
IV.—INJURIES.							
1. General	—	1	—	1	—	—	—
2. Local	105	1	—	1	—	1	3·62
3. In Action	—	—	—	—	—	—	—
No appreciable disease	8	—	—	—	—	—	·12
Cause unknown (refers to deaths only)	—	—	—	—	—	—	—
General Total	1,606	14	—	14	—	80	89·51
*Average of 10 years, 1877–86	—	—	—	—	—	—	—

† The average ratios for 10 years will be given in future years. The average ratios for the 1886 to 1888 in

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into HOSPITAL, DEATHS, NUMBERS INVALIDED and CONSTANTLY SICK among the Ratios per 1,000 of the Strength, and the Average Ratios for 10 Years.*

Ratio per 1,000.					Ratios per 1,000 for 1886.†				
Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged.	Constantly Sick.	Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged.	Constantly Sick.
—	—	—	—	·06	·9	—	—	—	·06
9·1	—	—	—	·66	2·7	—	—	—	·07
—	—	—	—	—	—	—	—	—	—
152·7	·83	—	—	5·58	172·3	—	—	—	5·38
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—
16·6	—	—	—	·95	31·2	1·79	—	·89	1·54
28·2	—	—	—	·70	43·8	—	—	—	·79
206·6	·83	—	—	7·95	250·9	1·79	—	·89	7·84
90·5	2·49	—	1·66	2·69	146·4	7·14	—	—	3·80
·8	—	—	—	·01	—	—	—	—	—
73·9	—	—	—	4·16	92·9	—	—	—	9·92
26·5	—	—	2·49	1·83	29·3	—	—	—	1·38
100·2	—	—	—	10·58	132·1	—	—	—	5·72
299·6	—	—	2·49	16·62	247·3	—	—	—	17·03
—	—	—	—	—	—	—	—	—	—
1·7	—	—	—	·02	1·8	—	—	—	·02
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	·9	—	—	—	·01
7·5	—	—	4·15	·27	6·3	—	—	1·79	·47
62·2	—	—	4·98	3·69	85·7	—	—	—	3·23
8·3	2·49	—	10·78	1·63	4·5	2·67	—	·89	1·20
9·1	—	—	4·98	1·34	3·6	·89	—	1·79	·58
10·8	—	—	3·32	·54	21·4	1·79	—	1·79	1·44
·8	—	—	1·66	·26	·9	—	—	1·79	·31
25·7	—	—	3·32	2·27	18·7	—	—	1·79	1·03
8·3	—	—	1·66	·89	3·6	·89	—	—	·15
20·8	—	—	3·29	2·17	5·3	1·79	—	2·67	1·13
53·3	2·49	—	4·15	4·02	74·1	1·79	—	·89	3·99
73·9	1·66	—	4·15	2·02	100·9	—	—	—	2·15
54·0	—	—	·83	3·79	25·9	—	—	—	1·63
·8	—	—	1·66	·17	5·3	·89	—	—	·38
215·8	—	—	·83	16·77	59·8	—	—	·89	3·21
15·8	—	—	5·82	1·29	2·7	—	—	·89	·17
23·2	—	—	·83	1·21	47·3	—	—	—	2·40
50·6	—	—	—	1·57	83·0	—	—	—	2·41
—	—	—	—	—	—	—	—	—	—
—	·83	—	—	—	·9	—	—	—	·02
87·1	·83	—	·83	3·00	91·1	—	—	—	2·63
—	—	—	—	—	—	—	—	—	—
6·6	—	—	—	·10	4·5	—	—	—	·04
—	—	—	—	—	—	—	—	—	—
1338·8	11·62	—	66·39	74·29	1292·8	19·64	—	16·07	57·25
1066·7	15·51	—	34·62	58·58	—	—	—	—	—

two years 1886 to 1887 will be given in the Report for 1888; those for the three years that for 1889, &c., &c.

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ABSTRACT No. IX.—TABLE showing the AVERAGE STRENGTH, ADMISSION among the TROOPS stationed at WEST AFRICA during the Year 1887, with

Average Strength, 570. Diseases.	Admissions into Hospital.	Deaths. In the Command.	Deaths. Of Invalids.	Deaths. Total.	Invalids. Number sent to West Indies.	Invalids. Number finally Discharged the Service.	Average Number Constantly Sick.
I.—GENERAL DISEASES.							
GROUP "A."							
Sub-Group I. Small-pox	—	—	—	—	—	—	—
Other Eruptive Fevers	—	—	—	—	—	—	—
Enteric Fever	—	—	—	—	—	—	—
Other Continued Fevers	2	—	—	—	—	—	—
Yellow Fever	—	—	—	—	—	—	—
Cholera	—	—	—	—	—	—	—
Dysentery	21	—	—	—	1	—	1·49
Other Diseases	—	—	—	—	—	—	—
Total	23	—	—	—	1	—	1·49
Sub-Group II.—Malarial Fevers	183	4	—	4	—	—	4·57
Sub-Group III.—Septic Diseases	5	1	—	1	—	—	·02
Sub-Group IV. Syphilis, Primary	25	—	—	—	—	—	3·18
„ Secondary	4	—	—	—	1	—	·14
Gonorrhœa	70	—	—	—	—	—	5·86
Total	99	—	—	—	1	—	9·18
Sub-Group V.—Hydrophobia, &c.	—	—	—	—	—	—	—
GROUP "B."							
Sub-Group I.—Parasitic Diseases	—	—	—	—	—	—	—
Sub-Group II. Scurvy	—	—	—	—	—	—	—
Alcoholism	1	—	—	—	—	—	·08
GROUP "C."							
Debility, &c.	17	—	—	—	16	—	1·74
GROUP "D."							
Rheumatism	33	—	—	—	2	—	2·56
Tubercular Diseases	3	2	—	2	4	—	·31
Other Diseases	—	—	—	—	—	—	—
II.—LOCAL DISEASES.							
Diseases of the—							
1. Nervous System Nervous Diseases	3	—	—	—	—	—	·39
Mental „	1	—	—	—	—	—	·02
2. Eye	12	—	—	—	2	—	·61
3 & 4. Other Organs of Special Senses	2	—	—	—	—	—	·15
5. Circulatory System	9	2	—	2	2	—	·57
6. Respiratory „	28	—	—	—	—	—	1·51
7. Digestive „	26	—	—	—	—	—	·77
8. Lymphatic and Glandular System	33	—	—	—	1	—	3·86
9. Urinary System	5	2	—	2	—	—	·22
10. Generative „	25	—	—	—	1	—	2·02
11. Organs of Locomotion	9	—	—	—	4	—	·92
12. Connective Tissue	18	—	—	—	—	—	·55
13. Skin	74	—	—	—	1	—	2·83
III.—POISONS.							
IV.—INJURIES.							
1. General	—	1	—	1	—	—	—
2. Local	35	1	—	1	—	—	1·19
3. In Action	8	1	—	1	—	—	·03
No appreciable disease	1	—	—	—	—	—	—
Cause unknown (refers to deaths only)	—	—	—	—	—	—	—
General Total	653	14	—	14	35	—	35·59
* Average of 10 years, 1877-66	—	—	—	—	—	—	—

† The average ratios for 10 years will be given in future years. The average ratios for the two in that

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into HOSPITAL, DEATHS, NUMBERS INVALIDED and CONSTANTLY SICK the Ratios per 1,000 of the Strength, and the Average Ratios for 10 Years.*

Ratio per 1,000.					Ratios per 1,000 for 1856.†				
Admissions.	Deaths.	Invalids sent to West Indies.	Invalids finally Discharged.	Constantly Sick.	Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged.	Constantly Sick.
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—
3·5	—	—	—	—	69·6	—	—	—	·71
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—
36·8	—	1·75	—	2·61	37·8	—	—	—	3·86
—	—	—	—	—	61·6	—	—	—	1·45
40·3	—	1·75	—	2·61	169·0	—	—	—	6·02
321·0	7·02	—	—	8·02	1566·6	11·93	—	—	29·84
8·7	1·75	—	—	·04	—	—	—	—	—
43·9	—	—	—	5·58	99·4	—	—	—	9·07
7·0	—	1·75	—	·25	6·0	—	—	—	·58
123·8	—	—	—	10·28	243·5	—	—	—	12·68
173·7	—	1·75	—	16·11	347·9	—	—	—	23·33
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	2·0	—	—	—	—
—	—	—	—	—	—	—	—	—	—
1·8	—	—	—	·14	2·0	—	—	—	·04
29·8	—	28·07	—	3·05	29·8	—	—	—	·71
57·9	—	3·51	—	4·49	51·7	—	—	—	2·82
5·3	3·51	7·02	—	·54	4·0	—	—	—	1·09
—	—	—	—	—	4·0	—	—	—	·02
5·3	—	—	—	·68	11·9	—	—	—	·93
1·8	—	—	—	·04	—	—	—	—	—
21·0	—	3·51	—	1·07	39·8	—	—	—	1·73
3·5	—	—	—	·26	8·0	—	—	—	·14
15·8	3·51	3·51	—	1·00	41·7	—	—	—	2·21
49·1	—	—	—	2·65	95·4	3·97	—	—	3·86
45·6	—	—	—	1·35	99·4	—	—	—	2·49
57·9	—	1·75	—	6·77	85·5	—	—	—	6·54
3·8	3·51	—	—	·39	2·0	1·99	—	—	·04
43·9	—	1·75	—	3·54	99·4	—	—	—	4·45
15·8	—	7·02	—	1·61	9·9	—	—	—	·80
31·6	—	—	—	·97	27·8	—	—	—	1·41
129·8	—	1·75	—	4·97	145·1	—	—	—	5·79
—	1·75	—	—	—	2·0	—	—	—	·04
61·4	1·75	—	—	2·09	143·1	1·99	—	—	5·19
14·0	1·75	—	—	·05	—	—	—	—	—
1·8	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—
1145·6	24·56	61·40	—	62·44	2968·0	19·88	—	—	98·49
1642·5	19·31	4·51	11·55	67·85	—	—	—	—	—

years 1856 to 1857 will be given in the Report for 1858; those for the three years 1856 to 1858 for 1859, &c., &c.

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ABSTRACT No. X.—TABLE showing the AVERAGE STRENGTH, ADMISSIONS among the TROOPS stationed in SOUTH AFRICA and at ST. HELENA average Ratios for 10 Years.*

Average Strength, 3,490. Diseases.	Admissions into Hospital.	Deaths. In the Command.	Deaths. Of Invalids.	Deaths. Total.	Invalids. Number sent Home.	Invalids. Number finally discharged the Service.	Average Number constantly Sick.
I.—GENERAL DISEASES.							
GROUP "A."							
Sub-Group I. Small-pox	—	—	—	—	—	—	—
Other Eruptive Fevers	3	—	—	—	—	—	·12
Enteric Fever	5	2	—	2	—	—	·67
Other Continued Fevers	44	—	—	—	—	—	2·63
Yellow Fever	—	—	—	—	—	—	—
Cholera	—	—	—	—	—	—	—
Dysentery	23	1	—	1	4	1	2·64
Other Diseases	—	—	—	—	—	—	—
Total	75	3	—	3	4	1	6·05
Sub-Group II.—Malarial Fevers	27	—	—	—	1	—	1·28
Sub-Group III.—Septic Diseases	10	—	—	—	—	—	·32
Sub-Group IV. Syphilis, Primary	532	—	—	—	—	—	42·02
„ Secondary	194	1	—	1	4	2	16·26
Gonorrhœa	365	—	—	—	1	—	23·46
Total	1,091	1	—	1	5	2	81·74
Sub-Group V.—Hydrophobia, &c.	—	—	—	—	—	—	—
GROUP "B."							
Sub-Group I.—Parasitic Diseases	5	—	—	—	—	—	·08
Sub-Group II. Scurvy	—	—	—	—	—	—	—
Alcoholism	11	—	—	—	—	—	·20
GROUP "C."							
Debility, &c.	46	—	—	—	21	9	4·17
GROUP "D."							
Rheumatism	193	—	—	—	8	2	12·90
Tubercular Diseases	14	4	—	4	5	5	2·15
Other Diseases	22	—	—	—	1	1	1·20
II.—LOCAL DISEASES.							
Diseases of the—							
1. Nervous System Nervous Diseases	19	1	—	1	1	2	·88
Mental „	3	1	—	1	3	3	·54
2. Eye	53	—	—	—	6	4	3·90
3 & 4. Other Organs of Special Senses	9	—	—	—	3	3	·99
5. Circulatory System	51	1	—	1	13	6	4·84
6. Respiratory „	63	2	1	3	3	2	4·09
7. Digestive „	272	3	—	3	3	—	9·01
8. Lymphatic and Glandular System	230	—	—	—	1	1	22·28
9. Urinary System	22	1	—	1	4	—	1·37
10. Generative „	263	—	—	—	—	—	16·69
11. Organs of Locomotion	25	—	—	—	4	2	2·16
12. Connective Tissue	100	—	—	—	—	—	4·95
13. Skin	163	—	—	—	—	—	8·80
III.—POISONS	1	—	—	—	—	—	·03
IV.—INJURIES							
1. General	9	7	—	7	1	1	·25
2. Local	318	3	—	3	4	4	14·74
3. In Action	—	—	—	—	—	—	—
No appreciable disease	2	—	—	—	—	—	·10
Cause unknown (refers to deaths only)	—	—	—	—	—	—	—
General Total	3,097	27	1	28	91	48	205·71
* Average of 10 years, 1877–86	—	—	—	—	—	—	—

† The average ratios for 10 years will be given in future years. The average ratios for 1886 to 1888 in

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into HOSPITAL, DEATHS, NUMBERS INVALIDED and CONSTANTLY SICK during the Year 1887, with the Ratios per 1,000 of the Strength, and the

Ratio per 1,000.					Ratios per 1,000 for 1886.†				
Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged.	Constantly Sick.	Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged.	Constantly Sick.
—	—	—	—	—	—	—	—	—	—
·9	—	—	—	·03	·2	—	—	—	·03
1·4	·57	—	—	·19	3·5	1·51	—	—	·36
12·6	—	—	—	·75	41·6	—	—	—	1·47
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—
6·6	·29	1·15	·29	·76	4·3	—	·50	—	·32
—	—	—	—	—	—	—	—	—	—
21·5	·86	1·15	·29	1·73	49·6	1·51	·50	—	2·18
7·7	—	·29	—	·37	8·6	—	—	—	·28
2·9	—	—	—	·09	·2	—	—	—	·02
153·4	—	—	—	12·04	120·3	—	—	—	9·36
55·6	·29	1·15	·57	4·66	49·1	·25	1·01	·76	3·69
104·6	—	·29	—	6·72	106·3	—	—	—	7·56
312·6	·29	1·43	·57	23·42	275·7	·25	1·01	·76	20·61
—	—	—	—	—	—	—	—	—	—
1·4	—	—	—	·02	·7	—	—	—	·01
—	—	—	—	—	—	—	—	—	—
3·1	—	—	—	·06	5·0	—	—	—	·10
13·2	—	6·02	2·58	1·29	24·2	—	4·03	1·26	1·84
55·3	—	2·29	·57	3·70	27·2	—	1·51	·76	2·12
4·0	1·15	1·43	1·43	·62	2·0	—	—	·25	·34
6·3	—	·29	·29	·34	2·5	—	—	—	·06
5·4	·29	·29	·57	·25	5·5	·25	1·76	1·01	·57
·9	·29	·86	·86	·16	1·3	—	1·01	1·26	·28
15·2	—	1·72	1·15	1·12	20·4	—	1·51	2·01	1·75
2·6	—	·86	·86	·23	3·0	·25	—	·25	·14
14·6	·29	3·72	1·72	1·39	9·1	·25	3·78	2·52	1·33
13·0	·86	·86	·57	1·17	14·9	·50	·25	·25	·97
77·9	·86	·86	—	2·58	80·8	·25	1·26	·76	2·66
65·9	—	·29	·29	6·38	37·3	—	—	—	3·84
6·3	·29	1·15	—	·39	4·8	—	—	—	·23
75·4	—	—	—	4·78	46·3	—	—	—	2·47
7·2	—	1·15	·57	·62	5·3	—	·50	1·01	·42
23·7	—	—	—	1·42	23·7	—	·25	—	1·15
46·7	—	—	—	2·52	55·9	—	—	—	1·96
·3	—	—	—	·01	—	—	—	—	—
2·6	2·00	·29	·29	·07	1·3	·25	—	—	·04
91·1	·86	1·15	1·15	4·22	101·0	·76	1·01	·76	4·18
—	—	—	—	—	—	—	—	—	—
·6	—	—	—	·03	2·3	—	—	—	·04
—	—	—	—	—	—	—	—	—	—
887·4	8·62	26·07	13·75	58·94	808·6	4·28	18·38	12·84	49·09
830·6	33·05	58·31	22·04	51·25	—	—	—	—	—

the two years 1886 to 1887 will be given in the Report for 1888; those for the three years that for 1889, &c., &c.

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ABSTRACT No. XI.—TABLE showing the AVERAGE STRENGTH, ADMISSIONS among the TROOPS stationed at MAURITIUS during the Year 1887, with

Average Strength, 400. Diseases.	Admissions into Hospital.	Deaths. In the Command.	Deaths. Of Invalids.	Deaths. Total.	Invalids. Number sent Home.	Invalids. Number finally Discharged the Service.	Average Number Constantly Sick.
I.—GENERAL DISEASES.							
GROUP "A."							
Sub-Group I. Small-pox	—	—	—	—	—	—	—
Other Eruptive Fevers	—	—	—	—	—	—	—
Enteric Fever	1	—	—	—	—	—	·01
Other Continued Fevers	7	3	—	3	—	—	·40
Yellow Fever	—	—	—	—	—	—	—
Cholera	—	—	—	—	—	—	—
Dysentery	25	1	—	1	—	—	1·74
Other Diseases	—	—	—	—	—	—	—
Total	33	4	—	4	—	—	2·15
Sub-Group II.—Malarial Fevers	259	2	—	2	—	—	9·30
Sub-Group III.—Septic Diseases	1	—	—	—	—	—	·06
Sub-Group IV. Syphilis, Primary	24	—	—	—	—	—	1·34
" Secondary	13	—	—	—	2	1	1·24
Gonorrhœa	64	—	—	—	—	—	3·85
Total	101	—	—	—	2	1	6·43
Sub-Group V.—Hydrophobia, &c.	—	—	—	—	—	—	—
GROUP "B."							
Sub-Group I.—Parasitic Diseases	1	—	—	—	—	—	·06
Sub-Group II. Scurvy	—	—	—	—	—	—	—
Alcoholism	3	—	—	—	—	—	·14
GROUP "C."							
Debility, &c.	8	—	—	—	16	2	·75
GROUP "D."							
Rheumatism	12	—	—	—	1	1	·60
Tubercular Diseases	1	—	—	—	1	3	·02
Other Diseases	1	—	—	—	—	—	·06
II.—LOCAL DISEASES.							
Diseases of the—							
1. Nervous System Nervous Diseases	3	—	—	—	1	1	·26
Mental "	1	—	—	—	1	1	·17
2. Eye	1	—	—	—	—	1	·07
3 & 4. Other Organs of Special Senses	2	—	—	—	—	—	·02
5. Circulatory System	13	—	—	—	3	3	·39
6. Respiratory "	9	—	—	—	1	1	·29
7. Digestive "	37	1	—	1	—	—	1·56
8. Lymphatic and Glandular System	25	—	—	—	—	—	2·79
9. Urinary System	5	—	—	—	—	—	·41
10. Generative "	46	—	—	—	—	1	3·19
11. Organs of Locomotion	1	—	—	—	—	—	·19
12. Connective Tissue	7	—	—	—	—	—	·13
13. Skin	18	—	—	—	—	—	1·87
III.—POISONS.							
IV.—INJURIES.							
1. General	—	—	—	—	—	—	—
2. Local	46	1	—	1	—	—	2·28
3. In Action	—	—	—	—	—	—	—
No appreciable disease	1	—	—	—	—	—	·02
Cause unknown (refers to deaths only)	—	—	—	—	—	—	—
General Total	637	8	—	8	26	15	33·15
* Average of 10 years, 1877–86	—	—	—	—	—	—	—

† The average ratios for 10 years will be given in future years. The ratios for the two 1886 to 1888 in

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into HOSPITAL, DEATHS, NUMBERS INVALIDED and CONSTANTLY SICK the Ratios per 1,000 of the Strength, and the Average Ratios for 10 Years.*

Ratio per 1,000.					Ratios per 1,000 for 1886.†				
Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged.	Constantly Sick.	Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged.	Constantly Sick.
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—
2·5	—	—	—	·02	4·8	4·83	—	—	·19
17·5	7·50	—	—	1·00	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—
62·5	2·50	—	—	4·35	89·4	4·83	—	—	3·89
—	—	—	—	—	—	—	—	—	—
82·5	10·00	—	—	5·37	94·2	9·66	—	—	4·08
647·5	5·00	—	—	23·25	396·1	4·83	—	—	14·59
2·5	—	—	—	·15	2·4	—	—	—	·02
60·0	—	—	—	3·35	38·7	—	—	—	4·23
32·5	—	5·00	2·50	3·10	21·7	—	—	—	3·24
160·0	—	—	—	9·62	113·5	—	—	—	7·34
252·5	—	5·00	2·50	16·07	173·9	—	—	—	14·81
—	—	—	—	—	—	—	—	—	—
2·5	—	—	—	·07	—	—	—	—	—
—	—	—	—	—	2·4	—	—	—	·12
7·5	—	—	—	·35	14·5	—	—	—	·22
20·0	—	40·00	5·00	1·88	55·6	—	9·66	2·41	2·78
30·0	—	2·50	2·50	1·50	24·2	—	—	—	1·64
2·5	—	2·50	7·50	·05	4·8	—	4·83	—	·29
2·5	—	—	—	·07	4·8	—	—	—	·29
7·5	—	2·50	2·50	·65	16·9	2·41	2·41	—	·65
2·5	—	2·50	2·50	·43	12·1	—	7·25	7·25	2·06
2·5	—	—	2·50	·18	21·7	—	2·41	—	2·15
5·0	—	—	—	·05	14·5	—	2·41	2·41	1·21
32·5	—	7·50	7·50	2·23	33·8	—	7·25	2·41	2·37
22·5	—	2·50	2·50	·73	26·6	—	—	—	2·17
92·5	2·50	—	—	3·90	169·1	2·41	2·41	—	5·99
62·5	—	—	—	6·98	58·0	—	—	—	5·27
12·5	—	—	—	1·02	2·4	—	—	—	·19
130·0	—	—	2·50	7·97	41·1	—	—	—	2·42
2·5	—	—	—	·47	2·4	—	—	—	·07
17·5	—	—	—	·32	29·0	—	—	—	·89
45·0	—	—	—	3·43	91·8	—	—	—	4·66
—	—	—	—	—	—	2·41	—	—	—
115·0	2·50	—	—	5·70	147·3	—	—	—	6·81
—	—	—	—	—	—	—	—	—	—
2·5	—	—	—	·05	2·4	—	—	—	·02
—	—	—	—	—	—	—	—	—	—
1592·5	20·00	65·00	37·50	82·87	1442·0	21·73	38·64	14·49	75·79
2296·0	19·15	46·18	15·22	87·12	—	—	—	—	—

years 1886 to 1887 will be given in the Report for 1888; those for the three years that for 1889, &c., &c.

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ABSTRACT No. XII.—TABLE showing the AVERAGE STRENGTH, ADMISSIONS the Troops stationed at CEYLON during the Year 1887, with the Ratios

Average Strength, 1,077. Diseases.	Admissions into Hospital.	Deaths. In the Command.	Deaths. Of Invalids.	Deaths. Total.	Invalids. Number sent Home.	Invalids. Number finally Discharged the Service.	Average Number Constantly Sick.
I.—GENERAL DISEASES.							
GROUP "A."							
Sub-Group I. Small-pox	—	—	—	—	—	—	—
Other Eruptive Fevers	—	—	—	—	—	—	—
Enteric Fever	10	7	—	7	—	—	·98
Other Continued Fevers	67	—	—	—	—	—	2·28
Yellow Fever	—	—	—	—	—	—	—
Cholera	—	—	—	—	—	—	—
Dysentery	15	1	—	1	1	—	1·58
Other Diseases	—	—	—	—	—	—	—
Total	92	8	—	8	1	—	4·84
Sub-Group II.—Malarial Fevers	13	—	—	—	—	—	·26
Sub-Group III.—Septic Diseases	2	—	—	—	—	—	·05
Sub-Group IV. Syphilis, Primary	47	—	—	—	1	—	4·51
" Secondary	20	—	—	—	—	—	1·52
Gonorrhœa	199	—	—	—	—	—	10·39
Total	266	—	—	—	1	—	16·42
Sub-Group V.—Hydrophobia, &c.	—	—	—	—	—	—	—
GROUP "B."							
Sub-Group I.—Parasitic Diseases	2	—	—	—	—	—	·02
Sub-Group II. Scurvy	—	—	—	—	—	—	—
Alcoholism	10	—	—	—	—	—	·43
GROUP "C."							
Debility, &c.	15	—	—	—	2	1	1·12
GROUP "D."							
Rheumatism	15	—	—	—	—	—	1·25
Tubercular Diseases	5	1	—	1	3	3	·89
Other Diseases	35	—	—	—	—	—	1·70
II.—LOCAL DISEASES.							
Diseases of the—							
1. Nervous System Nervous Diseases	10	—	—	—	1	1	·82
Mental "	4	—	—	—	2	2	·86
2. Eye	16	—	—	—	1	1	1·12
3 & 4. Other Organs of Special Senses	21	—	—	—	—	—	1·33
5. Circulatory System	8	2	—	2	—	—	1·24
6. Respiratory "	11	2	—	2	—	—	1·81
7. Digestive "	132	1	—	1	1	—	5·00
8. Lymphatic and Glandular System	106	—	—	—	—	—	10·72
9. Urinary System	6	—	—	—	—	—	·65
10. Generative "	213	—	—	—	—	—	13·06
11. Organs of Locomotion	6	—	—	—	—	—	·27
12. Connective Tissue	33	—	—	—	—	—	1·17
13. Skin	66	—	—	—	—	—	2·62
III.—POISONS.							
IV.—INJURIES.							
1. General	1	2	—	2	—	—	·03
2. Local	135	—	—	—	2	2	5·29
3. In Action	—	—	—	—	—	—	—
No appreciable disease	4	—	—	—	—	—	·08
Cause unknown (refers to deaths only)	—	—	—	—	—	—	—
General Total	1,227	16	—	16	14	10	72·04
* Average of 10 years 1877–86	—	—	—	—	—	—	—

† The average ratios for 10 years will be given in future years. The average ratios three years 1886 to 1888

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into HOSPITAL, DEATHS, NUMBERS INVALIDED and CONSTANTLY SICK among per 1,000 of the Strength, and the Average Ratios for 10 Years.*

Ratio per 1,000.					Ratios per 1,000 for 1886.†				
Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged.	Constantly Sick.	Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged.	Constantly Sick.
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—
9·3	6·49	—	—	·91	10·5	4·22	—	—	·85
62·2	—	—	—	2·12	105·4	—	—	—	3·62
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—
13·9	·93	·93	—	1·47	10·5	1·05	1·05	—	1·02
—	—	—	—	—	—	—	—	—	—
85·4	7·43	·93	—	4·50	126·4	5·27	1·05	—	5·49
12·1	—	—	—	·24	31·6	—	—	—	·63
1·9	—	—	—	·05	—	—	—	—	—
45·6	—	·93	—	4·19	109·6	—	—	—	7·85
18·6	—	—	—	1·41	41·1	—	—	—	3·28
184·8	—	—	—	9·65	196·0	—	—	—	11·26
247·0	—	·93	—	15·25	346·7	—	—	—	22·89
—	—	—	—	—	—	—	—	—	—
1·9	—	—	—	·02	4·2	—	—	—	·04
—	—	—	—	—	—	—	—	—	—
9·3	—	—	—	·40	9·5	1·05	—	—	·20
13·9	—	1·86	·93	1·04	6·3	—	1·05	1·05	·76
13·9	—	—	—	1·16	17·9	—	—	—	·98
4·6	·93	2·78	2·78	·83	1·1	—	1·05	2·11	·01
32·5	—	—	—	1·58	10·5	—	—	—	·58
9·3	—	·93	·93	·76	9·5	—	3·16	2·11	·59
3·7	—	1·86	1·86	·80	1·1	—	1·05	1·05	·19
14·9	—	·93	·93	1·04	10·5	—	—	1·05	·58
19·5	—	—	—	1·23	19·0	—	—	—	·75
7·4	1·86	—	—	1·15	7·4	2·11	—	—	·23
10·2	1·86	—	—	1·68	14·8	—	5·27	2·11	2·14
122·6	·93	·93	—	4·64	160·2	1·05	1·05	—	6·25
98·4	—	—	—	9·95	47·5	—	—	—	5·29
5·6	—	—	—	·60	2·1	—	—	—	·06
197·8	—	—	—	11·20	83·2	—	—	—	4·40
5·6	—	—	—	·25	3·1	—	1·05	1·05	·13
30·6	—	—	—	1·09	25·3	—	—	—	1·04
61·2	—	—	—	2·43	68·5	—	—	—	3·04
·9	1·86	—	—	·02	2·1	1·05	—	—	·04
125·4	—	1·86	1·86	4·91	128·6	—	—	—	5·85
—	—	—	—	—	—	—	—	—	—
3·7	—	—	—	·07	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—
1139·3	14·86	13·00	9·29	66·89	1136·9	10·53	14·75	10·53	61·68
1169·3	14·63	36·10	14·63	60·17	—	—	—	—	—

for the two years 1886 to 1887 will be given in the Report for 1888; those for the in that for 1889, &c., &c.

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ABSTRACT No. XIII.—TABLE showing the AVERAGE STRENGTH, ADMIS- among the TROOPS stationed in CHINA and the STRAITS SETTLEMENTS Average Ratios for 10 years.*

Average Strength, 2,266. Diseases.	Admissions into Hospital.	Deaths. In the Command.	Deaths. Of Invalids.	Deaths. Total.	Invalids. Number sent Home.	Invalids. Number finally Discharged the Service.	Average Number constantly Sick.
I.—GENERAL DISEASES.							
GROUP "A."							
Sub-Group I. Small-pox	—	—	—	—	—	—	—
Other Eruptive Fevers	—	—	—	—	—	—	—
Enteric Fever	15	3	—	3	1	—	2·17
Other Continued Fevers	85	—	—	—	—	—	2·55
Yellow Fever	—	—	—	—	—	—	—
Cholera	—	—	—	—	—	—	—
Dysentery	24	1	—	1	1	—	2·02
Other Diseases	1	—	—	—	—	—	·01
Total	125	4	—	4	2	—	6·75
Sub-Group II.—Malarial Fevers	674	1	—	1	1	—	15·51
Sub-Group III.—Septic Diseases	—	—	—	—	—	—	—
Sub-Group IV. Syphilis, Primary	71	—	—	—	—	—	6·60
" secondary	65	—	—	—	1	1	4·25
Gonorrhœa	221	—	—	—	—	—	14·71
Total	357	—	—	—	1	1	25·56
Sub-Group V.—Hydrophobia, &c.	—	—	—	—	—	—	—
GROUP "B."							
Sub-Group I.—Parasitic Diseases	8	—	—	—	—	—	·13
Sub-Group II. Scurvy	—	1	—	1	—	—	·03
Alcoholism	9	—	—	—	—	—	·83
GROUP "C."							
Debility, &c.	31	—	—	—	5	3	1·86
GROUP "D."							
Rheumatism	20	—	—	—	—	1	1·18
Tubercular Diseases	16	—	—	—	6	3	2·40
Other Diseases	15	—	—	—	1	1	·83
II.—LOCAL DISEASES.							
Diseases of the— 1. Nervous System Nervous Diseases	13	1	—	1	1	1	·68
Mental "	—	—	—	—	1	1	·18
2. Eye	26	—	—	—	1	1	2·24
3 & 4. Other Organs of Special Senses	31	—	—	—	—	—	1·29
5. Circulatory System	9	—	—	—	1	—	·46
6. Respiratory "	48	—	—	—	3	—	3·26
7. Digestive "	238	2	—	2	6	1	7·50
8. Lymphatic and Glandular System	44	—	—	—	—	—	3·31
9. Urinary System	9	—	—	—	2	—	·81
10. Generative "	153	—	—	—	—	—	7·17
11. Organs of Locomotion	9	—	—	—	—	—	·43
12. Connective Tissue	49	—	—	—	—	—	1·89
13. Skin	153	—	—	—	2	—	5·54
III.—POISONS	—	—	—	—	—	—	—
IV.—INJURIES.							
1. General	3	2	—	2	—	—	·28
2. Local	213	2	—	2	1	1	7·95
3. In Action	—	—	—	—	—	—	—
No appreciable disease	2	—	—	—	—	—	·03
Cause unknown (refers to deaths only)	—	—	—	—	—	—	—
General Total	2,254	13	—	13	34	14	98·08
*Average of 10 years, 1877–86	—	—	—	—	—	—	—

† The average ratios for 10 years will be given in future years. The average ratios for the 1886 to 1888 in

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SIONS into HOSPITAL, DEATHS, NUMBERS INVALIDED and CONSTANTLY SICK during the Year 1887, with the Ratios per 1,000 of the Strength, and the

Ratio per 1,000.					Ratios per 1,000 for 1886.†				
Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged.	Constantly Sick.	Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged.	Constantly Sick.
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—
6·6	1·32	·44	—	·96	1·8	·88	—	--	·17
37·5	—	—	—	1·13	119·4	·44	—	—	3·47
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	·4	·44	—	—	·00
10·6	·44	·44	—	·89	7·5	·44	—	—	·47
·5	—	—	—	·00	·4	—	—	—	·02
55·2	1·77	·88	—	2·96	129·5	2·20	—	—	4·13
297·4	·44	·44	—	6·84	398·0	1·32	—	—	10·23
—	—	—	—	—	—	—	—	—	—
31·3	—	—	—	2·91	31·7	—	—	—	2·82
28·7	—	·44	·44	1·86	38·3	—	·88	·44	2·18
97·5	—	—	—	6·49	86·8	—	—	—	6·13
157·5	—	·44	·44	11·28	156·8	—	·88	·44	11·13
—	—	—	—	—	—	—	—	—	—
3·5	—	—	—	·06	4·4	—	—	—	·11
—	·44	—	—	·01	—	—	—	—	—
4·0	—	—	—	·37	8·8	1·32	—	—	·24
13·7	—	2·21	1·33	·82	17·6	—	1·76	1·32	1·28
8·8	—	2·65	·44	·53	10·6	—	·44	—	·44
7·1	—	·44	1·32	1·06	·9	—	·44	·44	·08
6·6	—	—	·44	·36	7·1	—	—	—	·76
5·7	·44	·44	·44	·30	7·5	·88	·44	1·32	·34
—	—	·44	·44	·08	1·8	·44	·44	·44	·25
11·5	—	·44	·44	·99	12·8	—	·44	—	·51
13·7	—	—	—	·57	7·1	—	—	—	·26
4·0	—	·44	—	·20	7·1	·88	1·32	1·32	·64
21·2	—	1·32	—	1·44	30·0	1·32	·44	·88	1·31
105·0	·88	2·65	·44	3·31	85·1	·88	·88	·44	3·45
19·4	—	—	—	1·46	16·7	—	—	—	·90
4·0	—	·88	—	·36	3·8	·44	—	·44	·52
67·5	—	—	—	3·16	28·6	—	—	—	1·70
4·0	—	—	—	·19	13·7	—	1·76	·88	·81
21·6	—	—	—	·83	46·7	—	—	—	2·20
67·1	—	·88	—	2·45	91·2	—	—	—	4·16
—	—	—	—	—	1·3	—	—	—	·08
1·3	·88	—	—	·12	2·9	1·32	—	—	·07
94·0	·88	·44	·44	3·51	82·9	·44	·44	·88	3·65
—	—	—	—	—	—	—	—	—	—
·9	—	—	—	·01	2·6	—	—	—	·11
—	—	—	—	—	—	—	—	—	—
994·7	5·74	15·00	6·18	43·28	1174·5	11·45	9·69	8·81	49·41
1067·8	9·64	40·45	18·04	50·67	—	—	—	—	—

two years 1886 to 1887 will be given in the Report for 1888; those for the three years that for 1889, &c., &c.

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ABSTRACT No. XIV.—TABLE showing the AVERAGE STRENGTH, CONSTANTLY SICK, among the Troops stationed in BENGAL

Average Strength 40,921. Diseases.	Admissions into Hospital.	Deaths. In the Command.	Deaths. Of Invalids.	Deaths. Total.	Invalids. No. Sent Home.	Invalids. No. finally discharged the Service.
I.—GENERAL DISEASES.						
GROUP "A."						
Sub-Group I. Small-pox	39	2	—	2	—	—
Other Eruptive Fevers	143	—	—	—	—	—
Enteric Fever	538	166	—	166	4	—
Other Continued Fevers	3,483	5	—	5	1	—
Yellow Fever	—	—	—	—	—	—
Cholera	135	92	—	92	—	—
Dysentery	984	22	1	23	20	2
Other Diseases	57	—	—	—	—	—
Total	5,379	287	1	288	25	2
Sub-Group II.—Malarial Fevers	14,574	26	—	26	30	2
Sub-Group III.—Septic Diseases	72	2	—	2	—	—
Sub-Group IV. Syphilis, Primary	2,979	—	—	—	—	—
„ Secondary	1,114	—	1	1	44	11
Gonorrhœa	6,450	—	—	—	2	—
Total	10,543	—	1	1	46	11
Sub-Group V.—Hydrophobia, &c.	4	3	—	3	—	—
GROUP "B."						
Sub-Group I.—Parasitic Diseases	154	—	—	—	—	—
Sub-Group II. Scurvy	44	—	—	—	—	—
Alcoholism	695	1	—	1	—	—
GROUP "C."						
Debility, &c.	505	3	—	3	100	58
GROUP "D."						
Rheumatism	1,276	1	—	1	37	12
Tubercular Diseases	149	30	1	31	56	42
Other Diseases	600	2	2	4	22	4
II.—LOCAL DISEASES.						
Diseases of the—						
1. Nervous System Nervous Diseases	405	13	—	13	39	34
Mental „	69	—	—	—	37	38
2. Eye	567	—	—	—	25	26
3 & 4. Other Organs of Special Senses	500	—	—	—	31	21
5. Circulatory System	516	12	3	15	122	98
6. Respiratory „	1,534	36	2	38	23	12
7. Digestive „	6,098	76	2	78	71	20
8. Lymphatic and Glandular System	813	—	—	—	5	1
9. Urinary System	75	6	—	6	8	4
10. Generative „	3,527	—	—	—	6	9
11. Organs of Locomotion	285	1	—	1	27	25
12. Connective Tissue	851	—	—	—	5	1
13. Skin	2,818	—	—	—	5	2
III.—POISONS	14	5	—	5	—	—
IV.—INJURIES.						
1. General	108	60	—	60	7	1
2. Local	4,882	33	—	37	37	22
3. In Action	—	—	—	—	—	1
No appreciable disease	108	—	—	—	—	—
Cause unknown (refers to deaths only)	—	—	—	—	—	—
General Total	57,445	602	12	614	764	446
Average of 10 years, 1877–86	—	—	—	—	—	—

* The average ratios for 10 years will be given in future years. The average ratios for the 1886 to 1888 in that for

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ADMISSIONS into HOSPITAL, DEATHS, NUMBERS INVALIDED, and during the Year 1887, with the Ratios per 1,000 of the Strength.

Average Number constantly Sick.	Ratio per 1,000.					* Ratios per 1,000 for 1886.				
	Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged	Constantly Sick.	Admissions.	Deaths.	Invalids Sent Home.	Invalids finally Discharged	Constantly Sick.
4·19	1·0	·05	—	—	·10	·5	·03	—	—	·04
4·61	3·5	—	—	—	·11	7·8	—	—	—	·15
71·63	13·1	4·06	·10	—	1·75	20·7	5·61	·10	—	2·65
118·48	85·1	·12	·02	—	2·90	92·5	·08	—	—	3·17
—	—	—	—	—	—	—	—	—	—	—
3·00	3·3	2·25	—	—	·07	·9	·63	—	—	·02
63·28	24·1	·56	·49	·05	1·55	26·7	·88	·88	·03	1·62
1·99	1·4	—	—	—	·05	·5	—	—	—	·02
267·18	131·5	7·04	·61	·05	6·53	149·6	7·23	·98	·03	7·67
430·19	356·1	·64	·73	·05	10·51	381·6	·93	·81	—	10·50
5·24	1·7	·05	—	—	·13	1·2	·10	—	·03	·08
223·96	72·8	—	—	—	5·47	121·5	—	·03	—	8·84
101·13	27·2	·02	1·08	·37	2·47	33·1	·18	1·11	·15	2·80
481·65	157·6	—	·05	—	10·31	153·8	—	·05	—	10·16
746·74	257·6	·02	1·13	·27	18·25	308·4	·18	1·19	·15	21·80
·11	·1	·07	—	—	—	—	·03	—	—	—
3·72	3·8	—	—	—	·09	4·6	—	—	—	·13
2·09	1·1	—	—	—	·05	3·7	—	—	—	·15
19·88	17·0	·02	—	—	·48	16·3	·20	·08	·03	·44
55·58	19·7	·07	2·45	1·42	1·36	22·3	·03	1·46	1·19	1·30
78·76	31·2	·02	·90	·29	1·92	34·6	·10	·83	·25	2·00
29·76	3·6	·76	1·37	1·03	·73	4·0	1·09	1·54	1·16	·67
37·14	14·7	·10	·54	·10	·91	12·4	·13	·53	·15	·68
31·14	9·9	·32	·95	·83	·76	11·1	·33	1·16	·53	·75
31·85	1·7	—	·90	·93	·78	1·5	—	·76	1·11	·52
33·85	13·8	—	·61	·64	·83	14·0	—	·43	·38	·76
22·44	12·2	—	·76	·51	·55	13·9	—	·56	·50	·60
49·72	12·6	·37	2·98	2·40	1·21	13·1	·48	2·91	1·57	1·14
84·27	37·5	·93	·56	·29	2·06	35·0	·93	·91	·53	1·90
238·10	149·0	1·91	1·74	·49	5·82	169·1	1·59	1·79	·45	5·74
69·04	19·9	—	·13	·02	1·69	21·6	—	·23	·13	1·87
6·69	1·9	·15	·30	·10	·16	2·4	·13	·28	·08	·19
209·55	86·2	—	·15	·22	5·12	66·5	—	·33	·23	3·88
23·00	7·0	·02	·66	·61	·56	6·5	·08	·56	·42	·52
39·30	20·3	—	·13	·02	·96	21·9	—	·05	·08	·91
116·50	68·9	—	·13	·05	2·85	76·3	—	·10	·05	2·92
·26	·3	·13	—	—	·01	·3	·05	—	—	·01
6·42	2·6	1·47	·17	·02	·16	4·1	1·26	·05	—	·18
206·78	119·3	·92	·90	·54	5·05	117·0	·93	·76	·38	4·51
—	—	—	—	·02	—	—	—	—	—	—
4·94	2·6	—	—	—	·13	2·9	—	—	—	·08
—	—	—	—	—	—	—	—	—	—	·06
2,850·24	1,403·8	15·00	18·67	10·90	69·65	1515·9	15·80	18·30	9·43	71·96
—	1,595·2	17·90	32·21	15·98	68·48	—	—	—	—	—

two years 1886 and 1887 will be given in the Report for 1888; those for the three years 1888, &c., &c.

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ABSTRACT No. XV.—TABLE, taken from the REPORT of the PRINCIPAL MEDICAL OFFICER, showing the ADMISSIONS and DEATHS which took place at the CHIEF STATIONS in the BENGAL COMMAND during the year 1887.

Divisions.	Stations.	Average Annual Strength.	Admitted into Hospital.	Died in India.	Ratio per 1,000 of Strength.		Ratio per 1,000 of Strength, 1877 to 1886.	
					Admissions.	Deaths.	Admissions.	Deaths.
PRESIDENCY	Fort William	1,086	1,487	20	1369·2	18·42	1182·2	11·14
	Dum-Dum	644	1,222	6	1897·5	9·32	1347·6	10·63
	Barrackpore	251	468	2	1864·5	7·97	1848·2	11·48
	Darjeeling	272	350	5	1286·8	18·38	1114·1	17·87
ALLAHABAD	Allahabad	848	1,268	25	1495·3	29·48	1704·9	21·50
	Fort Allahabad	214	273	4	1275·7	18·69	*1644·7	18·01
	Cawnpore	365	717	7	1964·4	19·18	1421·0	16·17
	Dinapore	441	660	7	1496·6	15·87	1543·8	15·57
	Benares	424	599	13	1412·7	30·66	1740·1	26·88
	Chunar	75	178	4	2373·3	53·33	2731·2	38·21
OUDH	Lucknow	2,507	2,887	38	1151·6	15·16	1396·0	16·08
	Military Prison	49	53	—	1181·6	—	†1203·6	22·63
	Sitapur	468	710	7	1517·1	14·96	1375·6	21·88
	Fyzabad	943	1,317	13	1396·6	13·79	1530·7	19·25
ROHILCUND	Bareilly	1,016	1,215	10	1195·9	9·84	1360·9	12·26
	Moradabad	214	382	3	1785·0	14·02	1815·1	16·53
	Shahjehanpur	391	604	3	1544·8	7·67	1537·9	15·99
	Ranikhet	911	1,045	19	1147·1	20·86	979·7	7·44
	Chaubuttia	345	495	5	1434·8	14·49	‡1297·4	9·20
	Naini Tal	199	477	9	2397·0	45·23	1438·7	16·14
SAUGOR	Jubbulpore	782	901	13	1152·2	16·62	1438·0	10·88
	Saugor	382	1,002	6	2623·0	15·71	1520·4	15·12
	Nowgong	498	750	17	1506·0	34·14	1549·7	15·95
	Pachmarhi	93	108	—	1161·3	—	1830·8	11·47
GWALIOR	Jhansi	512	1,180	13	2304·7	25·39	1747·1	13·44
	Sipri	111	286	2	2576·6	18·02	§2285·7	23·81
MEERUT	Meerut	2,251	3,548	38	1576·2	16·88	1706·8	14·73
	Fatehgarh	161	244	2	1515·5	12·42	1980·5	16·96
	Agra	1,035	1,442	15	1393·2	14·49	1664·8	14·00
	Muttra	537	1,305	6	2430·2	11·17	1801·3	20·13
	Delhi	478	1,238	7	2589·0	14·64	3352·2	19·90
	Roorkee	352	732	7	2079·5	19·89	1508·5	14·92
	Chakrata	957	1,268	7	1325·0	7·31	1016·2	6·83
	Landour	157	337	1	2146·5	6·37	1677·6	14·69
SIRHIND	Umballa	1,785	2,094	21	1173·1	11·76	1487·8	11·98
	Jullundur	850	1,299	11	1528·2	12·94	1668·8	21·26
	Subathu	484	734	3	1516·5	6·20	1266·7	18·48
	Dagshai	804	734	9	912·9	11·19	1078·1	11·03
	Solon	249	180	1	722·9	4·02	1219·5	10·27
	Jutogh	224	417	3	1861·6	13·39	1206·1	7·84
	Kasauli	342	524	4	1532·2	11·70	2050·1	17·90
LAHORE	Meean Meer	872	2,211	19	2535·6	21·79	2962·3	29·30
	Fort Lahore	111	267	5	2405·4	45·05	2573·1	44·31
	Ferozepore	1,020	1,284	6	1258·8	5·88	1873·4	11·32
	Mooltan	915	1,150	12	1256·8	13·11	1737·3	12·51
	Amritsar	351	918	9	2615·4	25·64	2697·0	14·89
	Bhagsu	61	92	2	1508·2	32·79	‖1305·0	7·09
	Dalhousie	528	834	7	1579·5	13·26	1737·9	7·55

* 9 years (1878–86). † 5 years (1882–86). ‡ 8 years (1879–86).
§ 1 year (1886). ‖ 8 years (1877–78 and 1881–86).

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Divisions.	Stations.	Average Annual Strength.	Admitted into Hospital.	Died in India.	Ratio per 1,000 of Strength.		Ratio per 1,000 of Strength, 1877 to 1886.	
					Admissions.	Deaths.	Admissions.	Deaths.
RAWAL PINDI	Rawal Pindi	2,714	3,042	29	1120·9	10·69	1597·4	13·75
	Fort Attock	112	202	3	1803·6	26·79	2536·9	23·78
	Sialkot	1,156	1,243	14	1075·3	12·11	1575·0	22·10
	Campbellpore	316	347	4	1098·1	12·66	1525·4	19·55
	Khyra Gully	66	61	1	‖924·2	15·15	1571·8	30·09
	Barra Gully	63	72	1	1142·9	15·87	*1294·1	1·90
	Kuldunnah	363	291	4	801·7	11·02	*1406·2	11·68
	Kalabagh	47	69	1	1468·1	21·28	*1549·6	11·02
	Camp Gharial	443	319	3	720·1	6·77	†1045·9	4·91
	„ Thobba	150	107	—	713·3	—	‡1720·4	—
	„ Topa	273	232	1	849·8	3·66	§1179·8	3·10
	Murree	310	358	8	1154·8	25·81	1755·3	18·82
PESHAWAR	Peshawar	1,637	2,565	30	1566·9	18·33	2358·6	19·99
	Nowshera	700	934	8	1334·3	11·43	1690·3	19·34
	Cherat	532	435	14	817·7	26·32	‖1386·3	16·05
QUETTA	Quetta	2,021	2,651	20	1311·7	9·90	¶1409·6	22·53
MARCHING	Troops on the march	1,453	1,041	15	716·4	10·32	918·0	14·07

* 9 years (1877-79 and 1881-86). † 8 years (1877-78 and 1881-86). ‡ 3 years (1882, 1884, and 1885).
§ 3 years (1884-86). ‖ 9 years (1877-78 and 1880-86). ¶ 3 years (1881-83 and 1886).

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ABSTRACT No. XVI.—TABLE, taken from the REPORT of the PRINCIPAL MEDICAL OFFICERS of the MILITARY DIVISIONS in the BENGAL

Military Divisions.	Presidency.		Allahabad.		Oudh.		Rohilcund.		Saugor.		Gwalior.	
Average Strength.	2,253		2,367		3,967		3,076		1,755		623	
Diseases.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.
I.—GENERAL DISEASES.												
GROUP "A."												
Sub-Group I. Small-pox	—	—	—	—	—	—	4	—	2	—	—	—
Other Eruptive Fevers	1	—	2	—	28	—	—	—	2	—	—	—
Enteric Fever	1	—	54	17	109	23	55	13	17	6	8	4
Other Continued Fevers	290	—	432	—	214	—	198	—	68	1	70	—
Yellow Fever	—	—	—	—	—	—	—	—	—	—	—	—
Cholera	1	—	24	19	11	6	15	10	8	9	4	4
Dysentery	117	6	79	1	122	2	88	3	59	1	18	1
Other diseases	1	—	—	—	—	—	13	—	—	—	—	—
Total	411	6	591	37	484	31	373	26	156	17	100	9
Sub-Group II.—Malarial Fevers	817	1	458	—	581	3	757	1	1,041	3	725	1
Sub-Group III.—Septic Diseases	—	—	2	—	4	—	1	1	1	—	1	—
Sub-Group IV. Syphilis, Primary	99	—	126	—	604	—	378	—	107	—	42	—
" Secondary	62	—	63	—	126	—	105	—	43	—	17	—
Gonorrhœa	496	—	469	—	775	—	538	—	281	—	90	—
Total	657	—	658	—	1,505	—	1,021	—	431	—	149	—
Sub-Group V.—Hydrophobia, &c.	1	—	—	—	—	—	1	1	1	1	—	—
GROUP "B."												
Sub-Group I.—Parasitic Diseases	10	—	22	—	11	—	4	—	13	—	3	—
Sub-Group II. Scurvy	1	—	3	—	—	—	5	—	3	—	—	—
Alcoholism	35	—	59	—	56	—	34	—	54	—	2	—
GROUP "C."												
Debility, &c.	46	—	106	—	75	—	48	—	24	—	3	—
GROUP "D."												
Rheumatism	48	—	83	—	126	—	91	—	41	—	18	—
Tubercular Diseases	4	3	14	1	17	4	12	3	1	—	3	—
Other diseases	27	—	47	1	54	—	61	—	11	—	5	—
II.—LOCAL DISEASES.												
Diseases of the—												
1. Nervous System Nervous Diseases	26	—	36	—	61	—	18	2	11	2	7	1
Mental "	8	—	6	—	4	—	6	—	1	—	—	—
2. Eye	23	—	33	—	40	—	34	—	16	—	5	—
3 & 4. Other Organs of Special Senses	42	—	38	—	42	—	54	—	23	—	9	—
5. Circulatory System	34	1	31	2	34	2	30	—	25	1	17	—
6. Respiratory "	62	—	113	1	129	1	91	3	60	—	34	1
7. Digestive "	385	12	520	8	574	6	475	6	269	2	165	1
8. Lymphatic and Glandular System	68	—	56	—	88	—	51	—	39	—	20	—
9. Urinary System	11	1	5	—	4	—	2	—	1	—	—	—
10. Generative "	330	—	207	—	138	—	441	—	196	—	93	—
11. Organs of Locomotion	16	—	23	—	35	—	12	—	9	—	4	—
12. Connective Tissue	43	—	57	—	88	—	68	—	33	—	8	—
13. Skin	164	—	239	—	339	—	176	—	73	—	37	—
III.—POISONS.	—	1	—	—	3	—	—	—	—	1	—	—
IV.—INJURIES.												
1. General	2	7	20	10	9	6	4	5	3	3	2	2
2. Local	247	1	262	—	450	5	347	1	212	6	57	—
3. In Action	—	—	—	—	—	—	—	—	—	—	—	—
No appreciable disease	9	—	7	—	16	—	1	—	8	—	—	—
Cause unknown (refers to deaths only)	—	—	—	—	—	—	—	—	—	—	—	—
General Total	3,527	33	3,695	60	4,967	58	4,218	49	2,761	36	1,466	15

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OFFICER, showing the PREVALENCE and MORTALITY of the DIFFERENT COMMAND with the ratios per 1,000 of Strength during the year 1887.

Meerut.		Sirhind.		Lahore.		Rawal Pindi.		Peshawar.		Quetta.		Marching.		Camp of Exercise.		Total.	
5,928		4,738		3,858		6,013		2,869		2,021.		1,463		—		40,921	
Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.
9	2	1	—	6	—	6	—	11	—	—	—	—	—	—	—	39	2
3	—	94	—	3	—	1	—	5	—	4	—	—	—	—	—	143	—
75	27	35	11	47	11	100	32	27	19	3	2	7	1	—	—	538	166
338	1	242	1	466	1	125	—	819	—	212	1	9	—	—	—	3,483	5
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
20	15	2	1	9	5	5	1	23	10	2	2	11	10	—	—	135	92
132	1	92	1	71	3	110	1	42	1	27	1	27	—	—	—	984	22
3	—	—	—	33	—	1	—	2	—	1	—	3	—	—	—	57	—
580	46	466	14	635	20	348	34	929	30	249	6	57	11	—	—	5,379	287
3,720	3	927	2	2,178	4	1,086	—	822	3	1,043	5	419	—	—	—	14,574	26
5	—	5	—	4	1	17	—	5	—	25	—	2	—	—	—	72	2
373	—	293	—	158	—	541	—	165	—	22	—	71	—	—	—	2,979	—
231	—	126	—	131	—	138	—	38	—	21	—	13	—	—	—	1,114	—
860	—	610	—	777	—	869	—	309	—	222	—	154	—	—	—	6,450	—
1,464	—	1,029	—	1,006	—	1,548	—	512	—	265	—	238	—	—	—	10,543	—
—	—	—	—	1	1	—	—	—	—	—	—	—	—	—	—	4	3
33	—	12	—	17	—	20	—	4	—	4	—	2	—	—	—	154	—
13	—	4	—	12	—	2	—	—	—	2	—	—	—	—	—	44	—
73	—	175	—	116	—	58	1	18	—	15	—	—	—	—	—	695	1
209	1	65	—	98	1	66	1	28	—	35	—	2	—	—	—	805	3
173	—	222	—	121	—	207	1	48	—	68	—	30	—	—	—	1,276	1
27	1	9	7	22	5	23	3	13	2	3	1	1	—	—	—	149	30
90	—	87	1	87	—	49	—	47	—	35	—	—	—	—	—	600	2
71	3	68	2	29	1	54	1	17	1	4	—	3	—	—	—	405	13
13	—	10	—	7	—	7	—	5	—	1	—	1	—	—	—	69	—
99	—	81	—	61	—	79	—	71	—	21	—	4	—	—	—	567	—
59	—	65	—	59	—	56	—	26	—	26	—	1	—	—	—	500	—
100	1	73	1	49	2	70	1	26	1	23	—	4	—	—	—	516	12
228	4	141	5	168	9	165	2	170	4	149	6	24	—	—	—	1,534	36
935	10	816	8	603	8	721	8	324	5	256	2	55	—	—	—	6,098	76
159	—	69	—	50	—	84	—	68	—	47	—	14	—	—	—	813	—
17	1	6	1	10	1	14	2	2	—	2	—	1	—	—	—	75	6
475	—	380	—	444	—	338	—	312	—	85	—	88	—	—	—	3,527	—
52	—	28	—	20	—	57	—	14	1	5	—	10	—	—	—	285	1
127	—	103	—	105	—	116	—	40	—	26	—	17	—	—	—	831	—
578	—	288	—	319	—	354	—	159	—	78	—	9	—	—	—	2,818	—
3	—	5	1	2	1	1	—	—	1	—	—	—	—	—	—	14	5
8	8	11	3	21	4	12	5	8	3	5	—	3	4	—	—	108	60
779	5	821	7	439	2	776	10	260	1	178	—	54	—	—	—	4,832	38
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
14	—	16	—	13	—	15	—	6	—	1	—	2	—	—	—	108	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10,194	83	5,982	52	6,758	60	6,343	69	3,934	53	2,651	20	1,041	15	—	—	57,445	602

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Ratio per 1,000

Military Divisions.	Presidency.		Allahabad.		Oudh.		Rohilcund.		Saugor.		Gwalior.	
Average Strength.	2,253		2,367		3,967		3,076		1,755		623	
Diseases.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.
I.—GENERAL DISEASES.												
GROUP "A."												
Sub-Group I. Small-pox	—	—	—	—	—	—	1·3	—	1·1	—	—	—
Other Eruptive Fevers	·4	—	·8	—	7·0	—	—	—	1·1	—	—	—
Enteric Fever	·4	—	22·8	7·18	27·5	5·80	17·9	4·23	9·7	3·42	12·8	6·42
Other Continued Fevers	128·8	—	182·5	—	53·9	—	64·4	—	38·8	·57	112·4	—
Yellow Fever	—	—	—	—	—	—	—	—	—	—	—	—
Cholera	·4	—	10·2	8·03	2·8	1·51	4·9	3·25	4·6	5·12	6·4	6·42
Dysentery	52·0	2·67	33·4	·42	30·8	·50	28·6	·97	33·6	·57	28·9	1·61
Other Diseases	·4	—	—	—	—	—	4·2	—	—	—	—	—
Total	182·4	2·67	249·7	15·63	122·0	7·31	121·3	8·45	89·9	9·68	160·5	14·45
Sub-Group II.—Malarial Fevers	362·6	·44	193·5	—	146·5	·76	246·1	·33	593·2	1·71	1163·7	1·61
Sub-Group III.—Septic Diseases	—	—	·8	—	1·0	—	·3	·33	·6	—	1·6	—
Sub-Group IV. Syphilis, Primary	43·9	—	53·2	—	152·2	—	122·9	—	61·0	—	67·4	—
" Secondary	27·5	—	26·6	—	31·8	—	34·1	—	24·5	—	27·3	—
Gonorrhœa	220·2	—	198·2	—	195·4	—	174·9	—	160·1	—	144·5	—
Total	291·6	—	278·0	—	379·4	—	331·9	—	245·6	—	239·2	—
Sub-Group V.—Hydrophobia, &c.	·4	—	—	—	—	—	·3	·33	·6	·57	—	—
GROUP "B."												
Sub-Group I.—Parisitic Diseases	4·4	—	9·3	—	2·8	—	1·3	—	7·4	—	3·2	—
Sub-Group II. Scurvy	·4	—	·8	—	—	—	1·6	—	1·7	—	—	—
Alcoholism	15·5	—	24·9	—	14·1	—	11·1	—	30·8	—	3·2	—
GROUP "C."												
Debility, &c.	20·4	—	44·8	—	18·9	—	15·6	—	13·7	—	4·8	—
GROUP "D."												
Rheumatism	21·3	—	35·1	—	31·7	—	29·6	—	23·4	—	28·9	—
Tubercular Diseases	1·8	1·34	5·9	·42	4·3	1·01	3·9	·97	·6	—	4·8	—
Other Diseases	12·0	—	19·9	·42	13·6	—	19·8	—	6·2	—	8·0	—
II.—LOCAL DISEASES.												
Diseases of the—												
1. Nervous System (Nervous Diseases)	11·6	—	15·2	—	15·4	—	5·9	·65	6·2	1·14	11·2	1·61
(Mental ")	3·6	—	2·5	—	1·0	—	2·0	—	·6	—	—	—
2. Eye	10·2	—	13·9	—	10·1	—	11·1	—	9·1	—	8·0	—
3 & 4. Other Organs of Special Senses	18·7	—	16·1	—	10·6	—	17·5	—	13·1	—	14·5	—
5. Circulatory System	15·1	·44	13·1	·85	8·6	·50	9·7	—	14·2	·57	27·3	—
6. Respiratory "	27·5	—	47·7	·42	32·5	·26	29·6	·97	34·2	—	54·6	1·61
7. Digestive "	170·9	5·33	219·7	3·38	144·7	1·51	154·4	1·95	133·2	1·14	264·9	1·61
8. Lymphatic and Glandular System	30·2	—	23·7	—	22·2	—	16·6	—	22·2	—	32·1	—
9. Urinary System	4·9	·44	2·1	—	1·0	—	·7	—	·6	—	—	—
10. Generative "	146·5	—	87·5	—	34·8	—	143·4	—	111·7	—	149·3	—
11. Organs of Locomotion	7·1	—	9·7	—	8·8	—	3·9	—	5·1	—	6·4	—
12. Connective Tissue	19·1	—	24·1	—	22·2	—	22·1	—	18·8	—	12·8	—
13. Skin	72·8	—	101·0	—	85·4	—	57·2	—	44·4	—	59·4	—
III.—POISONS	—	·44	—	—	·8	—	—	—	—	·57	—	—
IV.—INJURIES.												
1. General	·9	3·11	8·4	4·22	2·3	1·51	1·3	1·62	1·7	1·71	3·2	3·21
2. Local	109·6	·44	110·7	—	113·4	1·26	112·8	·33	120·8	3·42	91·5	—
3. In Action	—	—	—	—	—	—	—	—	—	—	—	—
No appreciable disease	4·0	—	2·9	—	4·0	—	·3	—	4·6	—	—	—
Cause unknown (refers to deaths only)	—	—	—	—	—	—	—	—	—	—	—	—
General Total	1565·5	14·65	1561·0	25·34	1252·1	14·62	1371·3	15·98	1573·2	20·51	2353·1	24·08

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of Mean Strength.

Meerut.		Sirhind.		Lahore.		Rawal Pindi.		Peshawar.		Quetta.		Troops on the March.		Total.	
5,928		4,738		3,858		6,013		2,869		2,021		1,453		40,921	
Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.
1·5	·34	·2	—	1·6	—	1·0	—	3·8	—	—	—	—	—	1·0	·05
·5	—	19·9	—	·8	—	·2	—	1·8	—	1·9	—	—	—	3·5	—
12·6	4·55	7·4	2·32	12·2	2·85	16·6	5·32	9·4	6·62	1·5	·99	4·8	·69	13·1	4·05
57·0	·17	51·1	·21	120·8	·26	20·8	—	285·5	—	104·9	·49	6·2	—	85·1	·12
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3·4	2·53	·4	·21	2·3	1·30	·8	·17	8·0	3·49	1·0	·99	7·5	6·88	3·3	2·25
22·3	·17	19·4	·21	18·4	·77	18·3	·17	14·6	·35	13·4	·49	18·6	—	24·1	·54
·5	—	—	—	8·5	—	·2	—	·7	—	·5	—	2·1	—	1·4	—
97·8	7·76	98·4	2·95	164·6	5·18	57·9	5·66	323·8	10·46	123·2	2·96	39·2	7·57	131·5	7·01
627·5	·51	195·7	·42	564·5	1·06	180·6	—	286·5	1·04	516·1	2·47	283·4	—	356·2	·64
·8	—	1·1	—	1·0	·26	2·8	—	1·8	—	12·4	—	1·4	—	1·8	·05
62·9	—	61·8	—	41·0	—	90·0	—	57·5	—	10·9	—	48·9	—	72·8	—
39·0	—	26·6	—	33·9	—	23·0	—	13·3	—	10·4	—	8·9	—	27·2	—
145·1	—	128·8	—	201·4	—	144·5	—	107·7	—	109·8	—	106·0	—	157·6	—
247·0	—	217·2	—	276·3	—	257·5	—	178·5	—	131·1	—	163·9	—	257·6	—
—	—	—	—	·3	·26	—	—	—	—	—	—	—	—	·1	·07
5·6	—	2·5	—	4·4	—	3·3	—	1·4	—	1·9	—	1·4	—	3·8	—
2·2	—	·8	—	3·1	—	·3	—	—	—	1·0	—	—	—	1·1	—
12·3	—	36·9	—	30·1	—	9·7	·17	6·3	—	7·4	—	—	—	17·0	·02
35·3	·17	13·7	—	25·4	·25	11·0	·17	9·8	—	17·3	—	1·4	—	19·7	·07
23·2	—	46·9	—	31·4	—	34·4	·17	16·7	—	33·6	—	20·6	—	31·2	·02
4·6	·17	1·9	1·48	5·7	1·30	3·8	·49	4·5	·70	1·5	·44	·7	—	3·6	·74
15·2	—	18·4	·21	22·6	—	8·1	—	16·4	—	17·3	—	—	—	14·7	·05
12·0	·51	14·3	·42	7·5	·26	9·0	·17	5·9	·35	1·9	—	2·1	—	9·9	·33
2·2	—	2·1	—	1·8	—	1·2	—	1·8	—	·5	—	·7	—	1·7	—
16·7	—	17·1	—	15·8	—	13·1	—	24·7	—	10·4	—	2·7	—	13·9	—
9·9	—	13·7	—	15·3	—	9·3	—	9·1	—	12·9	—	·7	—	12·2	—
16·9	·17	15·4	·21	12·7	·52	11·6	·17	9·1	·35	11·4	—	2·7	—	12·6	·30
38·5	·67	29·7	1·06	43·5	2·33	27·4	·33	59·2	1·39	73·7	2·96	16·5	—	37·5	·88
157·7	1·69	172·2	1·69	156·3	2·06	119·9	1·33	112·9	1·74	126·7	·99	37·8	—	149·0	1·86
26·8	—	14·6	—	13·0	—	14·0	—	23·7	—	23·3	—	9·6	—	19·8	—
2·9	·17	1·3	·21	2·6	·26	2·3	·33	·7	—	1·0	—	·7	—	1·9	·15
80·1	—	80·2	—	115·1	—	56·2	—	108·7	—	42·0	—	60·5	—	86·2	—
8·8	—	5·9	—	5·2	—	9·5	—	4·9	·35	8·5	—	6·9	—	6·9	·02
21·4	—	21·7	—	27·2	—	19·3	—	13·9	—	12·9	—	11·7	—	20·3	—
97·5	—	60·8	—	82·7	—	58·9	—	55·4	—	38·6	—	6·2	—	68·8	—
·5	—	1·1	·21	·5	·26	·2	—	—	·35	—	—	—	—	·3	·12
1·3	1·34	2·3	·64	5·4	1·03	2·0	·83	2·8	1·04	2·5	—	2·1	2·75	2·6	1·47
131·4	·84	173·3	1·48	113·8	·52	129·1	1·66	90·6	·35	88·1	—	37·2	—	119·3	·92
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2·4	—	3·4	—	3·4	—	2·5	—	2·1	—	·5	—	1·4	—	2·6	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1704·5	14·00	1262·6	10·98	1751·2	15·55	1054·9	11·48	1371·2	18·18	1311·7	9·90	716·4	10·32	1403·8	14·71

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ABSTRACT No. XVII.—TABLE, taken from the REPORT of the PRINCIPAL MEDICAL OFFICER, showing the STATIONS in the BENGAL COMMAND at which the ADMISSIONS and DEATHS from ENTERIC FEVER took place in each of the four quarters of the year 1887.

Divisions.	Stations.	1st Quarter.		2nd Quarter.		3rd Quarter.		4th Quarter.		Total.	
		Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.
Presidency -	Barrackpore -	1	—	—	—	—	—	—	—	1	—
Allahabad -	Allahabad -	3	—	12	6	1	—	6	1	22	7
	Fort Allahabad	2	—	—	—	—	—	—	—	2	—
	Cawnpore -	1	—	1	1	—	—	—	—	2	1
	Dinapore -	—	—	2	—	6	1	1	—	9	1
	Benares -	—	—	3	2	4	2	8	2	15	6
	Chunar -	—	—	—	—	4	2	—	—	4	2
Oudh - -	Lucknow -	18	1	23	4	17	5	21	6	79	16
	Sitapur -	3	—	1	—	2	1	1	—	7	1
	Fyzabad -	12	2	4	2	4	2	3	—	23	6
Rohilcund -	Bareilly -	2	1	7	2	2	—	—	—	11	3
	Moradabad -	—	—	—	—	—	—	—	1	—	1
	Ranikhet -	—	—	8	3	8	1	4	1	20	5
	Chaubuttia -	4	—	2	—	13	2	4	1	23	3
	Naini Tal -	1	—	—	1	—	—	—	—	1	1
Saugor - -	Jubbulpore -	2	—	1	—	3	—	5	2	11	2
	Saugor - -	—	—	—	—	—	—	1	—	1	—
	Nowgong -	—	—	—	—	5	4	—	—	5	4
Gwalior - -	Jhansi -	—	—	—	—	—	—	6	3	6	3
	Sipri -	—	—	—	—	2	1	—	—	2	1

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Divisions.	Stations.	1st Quarter.		2nd Quarter.		3rd Quarter.		4th Quarter.		Total.	
		Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.
Meerut	Meerut	5	2	7	4	6	3	10	4	28	13
	Agra	—	—	2	1	4	2	1	—	7	3
	Muttra	—	—	2	—	1	1	1	—	4	1
	Delhi	—	—	—	—	1	1	—	—	1	1
	Roorkee	—	—	1	—	2	1	17	4	20	5
	Chakrata	—	—	11	2	2	1	1	1	14	4
	Landour	—	—	—	—	—	—	1	—	1	—
Sirhind	Umballa	2	1	3	—	1	1	3	1	9	3
	Jullundur	2	2	1	—	—	—	—	—	3	2
	Subathu	—	—	2	1	3	1	1	—	6	2
	Dagshai	—	—	4	1	4	1	—	—	8	2
	Jutogh	—	—	2	1	—	—	—	—	2	1
	Solon	—	—	3	1	4	—	—	—	7	1
Lahore	Meean Meer	—	—	7	1	3	1	2	1	12	3
	Fort Lahore	—	—	—	—	—	—	1	1	1	1
	Ferozepore	1	—	3	1	—	—	1	—	5	1
	Mooltan	4	1	1	—	2	—	3	1	10	2
	Amritsar	3	2	2	—	1	—	—	—	6	2
	Bhagsu	—	—	1	—	—	1	—	—	1	1
	Dalhousie	—	—	5	—	6	1	1	—	12	1
Rawal Pindi	Rawal Pindi	2	1	7	—	9	4	11	3	29	8
	Fort Attock	—	—	2	1	1	1	—	—	3	2
	Sialkot	2	—	3	2	5	2	11	6	21	10
	Campbellpore	—	—	4	1	3	—	1	—	8	1
	Khyra Gully	—	—	1	1	—	—	—	—	1	1
	Bara Gully	—	—	1	1	—	—	—	—	1	1
	Kuldunnah	—	—	6	1	—	—	—	—	6	1
	Camp Gharial	—	—	5	2	1	—	—	—	6	2

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Divisions.	Stations.	1st Quarter.		2nd Quarter.		3rd Quarter.		4th Quarter.		Total.	
		Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.
Rawal Pindi —*cont.*	Camp Topa -	—	—	8	—	2	1	2	—	7	1
	Murree -	—	—	4	1	12	3	2	1	18	5
Peshawar -	Peshawar -	—	1	2	2	2	1	3	2	7	6
	Nowshera -	—	1	—	—	—	—	1	—	1	1
	Cherat - -	—	—	6	2	13	10	—	—	19	12
Quetta -	Quetta -	—	—	—	—	—	—	3	2	3	2
Marching -	Troops on the March.	—	—	6	—	—	—	1	1	7	1
	Total -	70	15	171	48	159	58	138	45	588	166

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ABSTRACT No. XVIII.—TABLE, taken from the REPORT of the PRINCIPAL MEDICAL OFFICER, showing the STATIONS in the BENGAL COMMAND at which the ADMISSIONS and DEATHS from CHOLERA took place in each of the four quarters of the year 1887.

Divisions.	Stations.	1st Quarter.		2nd Quarter.		3rd Quarter.		4th Quarter.		Total.	
		Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.
Presidency	Dum Dum	1	—	—	—	—	—	—	—	1	—
Allahabad	Allahabad	—	—	1	2	7	5	—	—	8	7
	Fort Allahabad	5	1	—	—	—	—	—	—	5	1
	Cawnpore	—	—	3	3	—	—	—	—	3	3
	Dinapore	—	—	—	—	—	—	4	4	4	4
	Benares	—	—	—	—	4	4	—	—	4	4
Lucknow	Lucknow	—	—	—	—	8	5	2	—	10	5
	Fyzabad	—	—	1	1	—	—	—	—	1	1
Rohilcund	Ranikhet	—	—	1	—	11	7	—	—	12	7
	Chaubuttia	—	—	—	—	1	1	—	—	1	1
	Naini Tal	—	—	1	1	1	1	—	—	2	2
Saugor	Jubbulpore	2	2	—	—	—	—	—	—	2	2
	Nowgong	—	—	—	—	6	7	—	—	6	7
Gwalior	Jhansi	—	—	—	—	3	3	—	—	3	3
	Sipri	—	—	—	—	1	1	—	—	1	1
Meerut	Meerut	—	—	—	—	11	10	2	—	13	10
	Agra	—	—	—	—	7	5	—	—	7	5
Sirhind	Umballa	—	—	—	—	2	1	—	—	2	1
Lahore	Meean Meer	—	—	—	—	3	1	4	3	7	4
	Fort Lahore	—	—	—	—	1	—	—	1	1	1
	Dalhousie	—	—	—	—	—	—	1	—	1	—
Rawal Pindi	Rawal Pindi	—	—	—	—	1	—	—	—	1	—
	Fort Attock	—	—	—	—	1	—	—	—	1	—
	Sialkot	—	—	—	—	—	—	3	1	3	1
Peshawar	Peshawar	—	—	—	—	23	10	—	—	23	10
Quetta	Quetta	—	—	—	—	—	—	2	2	2	2
Marching	Troops on the march.	—	—	1	1	—	—	10	9	11	10
	Total	8	3	8	8	91	61	28	20	135	92

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ABSTRACT No. XIX.—TABLE, taken from the REPORT of the PRINCIPAL MEDICAL OFFICER, showing the PREVALENCE of DYSENTERY, DIARRHŒA, and HEPATIC DISEASES (Congestion, Inflammation, and Abscess of Liver) in each of the DIVISIONS in the BENGAL COMMAND during the Year 1887.

Divisions.	Presidency.		Allahabad.		Oudh.		Rohilcund.		Saugor.		Gwalior.		Meerut.		Sirhind.		Lahore.		Rawal Pindi.		Peshawar.		Quetta.		Marching.		Total.	
Strength.	2,253		2,367		3,967		3,076		1,755		623		5,928		4,738		3,858		6,013		2,869		2,021		1,453		40,921	
Diseases.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.
Dysentery - -	117	6	79	1	122	2	88	3	59	1	18	1	132	1	92	1	71	3	110	1	42	1	27	1	27	—	984	22
Diarrhœa - - -	94	—	182	—	147	—	176	1	75	—	93	—	270	1	148	1	136	—	183	—	68	—	59	—	28	—	1,659	3
Hepatitis and Abscess of Liver.	92	12	114	7	88	5	45	4	39	2	12	1	121	7	147	5	81	5	102	6	43	3	18	—	9	—	911	57
Total - - -	303	18	375	8	357	7	309	8	173	3	123	2	523	9	387	7	288	8	395	7	153	4	104	1	64	—	3,554	82

Ratio per 1,000 of Mean Strength.

Dysentery - -	52·0	2·67	33·4	·42	30·8	·50	28·6	·97	33·6	·57	28·9	1·61	22·3	·17	19·4	·21	18·4	·77	18·3	·17	14·6	·35	13·4	·49	18·6	—	24·1	·54
Diarrhœa - - -	41·7	—	76·9	—	37·0	—	57·2	·33	42·7	—	149·3	—	45·5	·17	31·3	·21	35·2	—	30·4	—	23·7	—	29·2	—	19·3	—	40·5	·07
Hepatitis and Abscess of Liver.	40·8	5·32	48·1	2·96	22·2	1·26	14·6	1·30	22·2	1·14	19·2	1·61	20·4	1·18	31·0	1·06	21·0	1·30	17·0	1·00	15·0	1·04	8·9	—	6·2	—	22·3	1·39
Total - - -	134·5	7·99	158·4	3·38	90·0	1·76	100·4	2·60	98·5	1·71	197·4	3·22	88·2	1·52	81·7	1·48	74·6	2·07	65·7	1·17	53·3	1·39	51·5	·49	44·1	—	86·9	2·00

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ABSTRACT No. XX.—TABLE, taken from the REPORT of the PRINCIPAL MEDICAL OFFICER, showing the PREVALENCE and MORTALITY in the Cantonments of the BENGAL COMMAND, due to DYSENTERY, DIARRHŒA, and HEPATITIS in each Quarter of the Year 1887.

—	Strength.	Dysentery.				Diarrhœa.				Hepatitis (including Abscess of Liver).				Total.			
		Number.		Ratio per 1,000 of Strength.		Number.		Ratio per 1,000 of Strength.		Number.		Ratio per 1,000 of Strength.		Number.		Ratio per 1,000 of Strength.	
		Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.
1st Quarter -	38,756	136	2	3·5	·05	184	—	4·7	—	161	14	4·2	·36	481	16	12·4	·41
2nd „ -	41,088	249	4	6·0	·10	435	—	10·6	—	233	8	5·7	·19	917	12	22·3	·29
3rd „ -	41,242	301	6	7·3	·15	696	2	16·9	·05	284	13	6·9	·31	1,281	21	31·1	·51
4th „ -	40,852	298	10	7·3	·25	362	1	8·9	·02	250	22	6·1	·54	910	33	22·3	·81
Total -	40,484	984	22	24·3	·54	1,677	3	41·4	·07	928	57	22·9	1·41	3,589	82	88·6	2·02

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ABSTRACT No. XXI.—TABLE showing the AVERAGE STRENGTH, ADMISSIONS into HOSPITAL, and DEATHS, INVALIDS, and AVERAGE NUMBER CONSTANTLY SICK among the TROOPS stationed in MADRAS during the

Average Strength, 11,738. Diseases.	Admissions into Hospitals.	Deaths. In the Command.	Deaths. Of Invalids.	Deaths. Total.	Invalids. Number sent Home.	Invalids. Number finally Discharged the Service.	Average Number Constantly Sick.
I.—GENERAL DISEASES.							
GROUP "A."							
Sub-Group I. Small-pox	—	—	—	—	—	—	—
Other Eruptive Fevers	7	—	—	—	—	—	·20
Enteric Fever	144	35	—	35	—	—	18·88
Other Continued Fevers	708	1	—	1	—	—	33·85
Yellow Fever	—	—	—	—	—	—	—
Cholera	7	7	—	7	—	—	·09
Dysentery	729	10	1	11	44	1	62·53
Other Diseases	24	—	—	—	—	—	·61
Total	1,619	53	1	54	44	1	116·16
Sub Group II.—Malarial Fevers	1,632	5	—	5	11	1	63·88
Sub-Group III.—Septic Diseases	6	1	—	1	—	—	·23
Sub-Group IV. Syphilis, Primary	918	—	—	—	—	—	76·85
„ Secondary	384	1	—	1	33	6	45·65
Gonorrhœa	1,652	—	—	—	—	—	119·98
Total	2,954	1	—	1	33	6	242·48
Sub-Group V.—Hydrophobia, &c.	—	—	—	—	—	—	—
GROUP "B."							
Sub-Group I.—Parasitic Diseases	51	—	—	—	—	—	1·47
Sub-Group II. Scurvy	2	—	—	—	—	—	·06
Alcoholism	187	—	—	—	1	—	5·90
GROUP "C."							
Debility, &c.	327	—	—	—	50	13	24·14
GROUP "D."							
Rheumatism	295	1	—	1	19	5	18·96
Tubercular Diseases	40	7	6	13	19	16	8·20
Other Diseases	103	2	2	4	9	4	6·70
II.—LOCAL DISEASES.							
Diseases of the—							
1. Nervous System Nervous Diseases	126	4	—	4	13	9	9·01
Mental „	16	—	—	—	14	13	5·11
2. Eye	159	—	—	—	9	6	8·65
3 & 4. Other Organs of Special Senses	155	—	—	—	11	11	7·60
5. Circulatory System	118	3	—	3	34	26	12·41
6. Respiratory „	324	9	—	9	15	9	19·59
7. Digestive „	1,852	37	1	38	37	19	87·08
8. Lymphatic and Glandular System	454	—	—	—	6	1	51·56
9. Urinary System	33	4	—	4	1	1	1·98
10. Generative „	1,447	—	—	—	4	2	95·18
11. Organs of Locomotion	55	—	—	—	6	5	4·58
12. Connective Tissue	230	—	—	—	2	—	11·63
13. Skin	909	—	—	—	—	2	38·37
III.—POISONS	8	—	—	—	—	—	·21
IV.—INJURIES.							
1. General	20	14	—	14	1	—	1·85
2. Local	1,433	11	—	11	25	7	63·52
3. In Action	—	—	—	—	—	—	·52
No appreciable disease	19	—	—	—	—	—	·82
Cause unknown (refers to deaths only)	—	—	—	—	—	—	—
General Total	14,574	152	10	162	364	157	906·82
* Average of 10 years 1877–86	—	—	—	—	—	—	—

† The average ratios for 10 years will be given in future years. The average ratios years 1836 to 1888 in

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SIONS into HOSPITAL, DEATHS, NUMBERS INVALIDED and CONSTANTLY Year 1887, with the Ratios per 1,000 of the Strength.*

Ratio per 1,000.					† Ratios per 1,000 for 1886.				
Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged.	Constantly Sick.	Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged.	Constantly Sick.
—	—	—	—	—	·1	—	—	—	·01
·6	—	—	—	·02	4·9	—	—	—	·17
12·3	2·96	—	—	1·61	12·4	3·93	·09	—	1·73
60·3	·08	—	—	2·88	112·2	·09	—	—	5·57
—	—	—	—	—	—	—	—	—	—
·6	·60	—	—	·01	·1	·09	—	—	—
62·1	·94	3·75	·08	5·33	68·8	2·68	1·96	·71	5·41
2·0	—	—	—	·05	1·4	—	—	—	·04
137·9	4·60	3·75	·08	9·90	199·9	6·79	2·05	·71	12·93
139·0	·43	·94	·08	5·44	140·5	·71	·27	—	5·87
·5	·08	—	—	·02	1·1	·09	—	—	·06
78·2	—	—	—	6·55	96·3	—	—	—	7·96
32·7	·08	2·81	·51	3·89	33·8	—	·62	·09	2·93
140·7	—	—	—	10·22	152·7	—	—	—	10·55
251·6	·08	2·81	·51	20·66	282·8	—	·62	·09	21·42
—	—	—	—	—	—	—	—	—	—
4·3	—	—	—	·12	2·9	—	—	—	·09
·3	—	—	—	·01	·1	—	—	—	—
15·9	—	·08	—	·50	12·4	—	—	—	·45
27·9	—	4·26	1·11	2·06	28·6	·09	3·22	2·05	1·83
25·1	·08	1·62	·43	1·62	31·6	·09	·71	·27	2·04
3·4	1·11	1·62	1·36	·70	4·8	·62	1·79	1·61	·91
8·8	·34	·77	·34	·57	9·8	·18	·09	·09	·66
10·7	·34	1·11	·77	·77	11·5	·62	1·34	1·79	·64
1·4	—	1·19	1·11	·43	2·0	·09	1·52	2·23	·58
13·6	—	·77	·51	·74	15·1	—	·27	·98	·82
13·2	—	·94	·94	·65	13·2	—	·80	·45	·69
10·1	·26	2·90	2·21	1·06	10·9	·71	3·13	1·52	1·13
27·6	·77	1·28	·77	1·67	31·8	·80	·80	·36	1·84
187·8	3·24	3·15	1·62	7·42	187·6	3·04	4·55	·71	8·61
38·7	—	·51	·08	4·39	45·1	—	·45	·18	4·83
2·8	·34	·08	·08	·16	3·5	—	·27	·18	·30
123·3	—	·34	·17	8·11	77·3	—	·09	—	4·46
4·7	—	·51	·43	·39	5·4	—	·89	·80	·50
19·6	—	·17	—	·99	20·3	—	—	—	·86
77·4	—	—	·17	3·27	89·5	—	·36	—	3·42
·7	—	—	—	·02	·7	—	—	—	·01
1·7	1·19	·08	—	·15	1·6	1·53	—	—	·08
122·1	·94	2·13	·60	5·38	133·0	1·25	·62	·89	5·47
—	—	—	—	·04	—	—	—	·18	·08
1·6	—	—	—	·07	2·8	—	—	—	·10
—	—	—	—	—	—	—	—	—	—
1241·6	13·80	31·01	13·37	77·26	1365·8	16·60	23·84	15·09	80·68
1210·0	14·02	33·06	15·22	62·73	—	—	—	—	—

for the two years 1886 and 1887 will be given in the Report for 1888; those for the three that for 1889, &c., &c.

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ABSTRACT No. XXII. — TABLE taken from the REPORT of the PRINCIPAL MEDICAL OFFICER, showing the AVERAGE STRENGTH, AVERAGE CONSTANTLY SICK, ADMISSIONS, DEATHS, and INVALIDS at the different STATIONS and CIRCLES in the MADRAS COMMAND, for the Year 1887.

Divisions.	Stations.	Average Strength.	Average constantly Sick.	Admitted.	Died in and out of Hospital.	Invalided.	Ratio per 1,000 of Strength.					
							Average constantly Sick.	Admitted.	Died (in and out).	Invalided.	Average of previous Period of 10 Years. Admitted.	Died.
Eastern District	Madras and Pallaveram.	622	65	991	13	16	104·50	1593·25	20·90	28·94	1255·43	13·46
	St. Thomas' Mount	293	21	420	4	7	71·67	1433·45	13·65	23·89	1327·89	12·69
	Total	915	86	1,411	17	25	93·99	1542·08	18·58	27·32	—	—
Southern District	Wellington	482	38	569	3	15	78·84	1180·50	6·22	31·12	—	—
	Cannanore	155	16	252	1	31	103·23	1625·81	6·45	200·00	1075·71	8·97
	Calicut	103	12	142	1	—	116 50	1378·64	9·71	—	1030·63	9·88
	Malliapooram	139	12	221	5	—	86·33	1589·93	35·07	—	1014·49	11·39
	Total	879	78	1,184	10	46	88·74	1346·99	11·38	52·33	—	—
Bangalore Division; Belgaum, and Ceded District.	Bangalore	2,066	103	1,649	19	37	49·85	798·16	9·20	17·91	1158·49	8·61
	Bellary	927	74	1,311	6	20	79·83	1414·24	6·47	21·57	1522·36	8·84
	Belgaum	788	63	842	10	27	79·95	1068·53	12·69	34·26	1066·02	6·49
	Total	3,781	240	3,802	35	84	63·48	1005·55	9·26	22·22	—	—
Hyderabad Subsidiary Force.	Secunderabad	2,846	196	3,230	34	56	68·87	1134·93	11·95	19·68	1158·53	12·28
Nagpore Force	Kamptee	879	61	1,200	11	13	69·40	1365·19	12·51	14·79	1344·87	13·60
	Seetabuldee	57	3	80	1	—	52·63	1403·51	17·54	—	1581·67	7·97
	Total	936	64	1,280	12	13	68·38	1367·52	12·82	13·89	—	—

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ABSTRACT No. XXII.—*continued.*

Divisions.	Stations.	Average Strength.	Average constantly Sick.	Admitted.	Died in and out of Hospital.	Invalided.	Ratio per 1,000 of Strength.					
							Average constantly Sick.	Admitted.	Died (in and out).	Invalided.	Average of previous Period of 10 Years.	
											Admitted.	Died.
British Burma Division.	Rangoon - -	889	72	1,181	12	20	80·99	1328·46	13·50	22·50	1460·34	16·45
	Thayetmyo -	321	48	809	6	19	149·53	2520·25	18·69	59·19	1190·77	17·46
	Toungoo - -	441	36	516	2	3	81·63	1170·07	4·54	6·80	1091·08	12·78
	Port Blair -	132	5	109	1	—	37·88	825·76	7·58	—	964·37	7·42
	Allanmyo - -	26	—	37	—	—	—	1423·08	—	—	—	—
	Total -	1,809	161	2,652	21	42	89·00	1466·00	11·61	23·22	—	—
Depôts - -	Poonamallee -	183	46	510	14	79	251·37	2786·89	76·50	431·69	1941·60	45·28
	Wellington -	240	28	429	7	19	116·67	1787·50	29·17	79·17	1172·41	12·43
	Total -	423	74	939	21	98	174·94	2219·86	49·65	231·68	—	—
Marching - -	On the March -	149	7	76	2	—	46·98	510·07	13·42	—	543·04	48·19

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ABSTRACT No. XXIII.—TABLE, taken from the REPORT of the PRINCIPAL MEDICAL in each of the MILITARY DIVISIONS in the MADRAS

Military Divisions.	Eastern District.		Southern District.		Bangalore Division, Belgaum, and Ceded Districts.		Hyderabad Subsidiary Force.		Nagpore Force.		British Burma Division.		Depôts.		On the March.		Total.	
Average Strength	915		879		3,781		2,846		936		1,809		423		149		11,738	
Diseases.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.
I.—GENERAL DISEASES.																		
GROUP "A."																		
Sub-Group I. Small-pox	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Eruptive Fevers	—	—	1	—	5	—	—	—	—	—	—	—	1	—	—	—	7	—
Enteric Fever	1	1	3	1	40	14	91	16	6	2	2	1	—	—	1	—	144	35
Other Continued Fevers	76	1	33	—	191	—	303	—	30	—	63	—	6	—	6	—	706	1
Yellow Fever	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Cholera	—	—	—	—	1	1	4	4	1	1	1	1	—	—	—	—	7	7
Dysentery	22	3	44	—	156	3	309	—	17	—	115	2	56	1	10	1	729	10
Other Diseases	4	—	1	—	1	—	18	—	—	—	—	—	—	—	—	—	24	—
Total	103	5	82	1	394	18	725	20	54	3	181	4	63	1	17	1	1,619	53
Sub-Group II.—Malarial Fevers	41	—	119	1	300	1	130	—	355	1	475	2	198	—	14	—	1,632	5
Sub-Group III.—Septic Diseases	—	—	1	—	2	1	2	—	—	—	1	—	—	—	—	—	6	1
Sub-Group IV. Syphilis, Primary	45	—	88	—	349	—	123	—	6	—	267	—	34	—	6	—	918	—
" Secondary	9	—	94	—	75	—	83	—	9	—	36	—	75	1	3	—	384	1
Gonorrhœa	205	—	135	—	481	—	402	—	154	—	218	—	49	—	8	—	1,652	—
Total	259	—	317	—	905	—	608	—	169	—	521	—	158	1	17	—	2,954	1
Sub-Group V.—Hydrophobia, &c.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
GROUP "B."																		
Sub-Group I.—Parasitic Diseases	12	—	6	—	19	—	10	—	—	—	2	—	2	—	—	—	51	—
Sub-Group II. Scurvy	—	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—	2	—
Alcoholism	6	—	3	—	81	—	32	—	10	—	53	—	2	—	—	—	187	—
GROUP "C."																		
Debility, &c.	41	—	12	—	58	—	43	—	6	—	90	—	76	—	1	—	327	—
GROUP "D."																		
Rheumatism	32	—	25	—	101	1	58	—	3	—	61	—	15	—	—	—	295	1
Tubercular Diseases	3	—	5	1	6	—	7	—	3	—	2	—	14	6	—	—	40	7
Other Diseases	11	—	9	—	47	1	21	—	4	1	6	—	5	—	—	—	103	2
II.—LOCAL DISEASES.																		
Diseases of the—																		
1. Nervous System { Nervous Diseases	19	2	17	1	20	—	21	—	7	1	36	—	5	—	1	—	126	4
{ Mental "	—	—	1	—	8	—	1	—	1	—	3	—	2	—	—	—	16	—
2. Eye	20	—	5	—	54	—	42	—	7	—	24	—	7	—	—	—	159	—
3 & 4. Other Organs of Special Senses.	39	—	6	—	43	—	26	—	8	—	29	—	4	—	—	—	155	—
5. Circulatory System	22	—	8	—	33	—	9	1	5	1	29	1	12	—	—	—	118	3
6. Respiratory "	23	2	34	1	79	2	74	1	15	1	53	1	45	1	1	—	324	9
7. Digestive "	192	6	202	3	397	5	508	8	82	—	306	4	159	11	6	—	1,852	37
8. Lymphatic and Glandular System.	56	—	34	—	122	—	46	—	58	—	119	—	18	—	1	—	454	—
9. Urinary System	2	—	2	1	12	1	3	—	1	—	10	2	3	—	—	—	33	4
10. Generative "	214	—	31	—	435	—	269	—	307	—	153	—	37	—	1	—	1,447	—
11. Organs of Locomotion	8	—	7	—	10	—	15	—	3	—	7	—	5	—	—	—	55	—
12. Connective Tissues	32	—	21	—	77	—	42	—	9	—	40	—	8	—	1	—	230	—
13. Skin	130	—	126	—	204	—	182	—	70	—	153	—	40	—	4	—	909	—
III.—POISONS	3	—	—	—	3	—	—	—	—	—	1	—	1	—	—	—	8	—
IV.—INJURIES.																		
1. General	3	2	—	1	5	2	3	2	6	3	1	2	—	1	2	1	20	14
2. Local	139	—	111	—	382	3	345	2	97	1	289	5	60	—	10	—	1,433	11
3. In Action	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
No appreciable disease	1	—	—	—	5	—	6	—	—	—	7	—	—	—	—	—	19	—
Cause unknown (refers to deaths only).	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Total	1,411	17	1,184	10	3,802	35	3,230	34	1,280	12	2,652	21	939	21	76	2	14,574	152

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OFFICER, showing the PREVALENCE and MORTALITY of the different Classes of the DISEASES COMMAND, for the Year 1887, with the Ratios per 1,000 of the Strength.

Eastern District.		Southern District.		Bangalore Division, Belgaum, and Ceded Districts.		Hyderabad Subsidiary Force.		Nagpore Force.		British Burma Division.		Depôts.		On the March.		Total.	
Ratio per 1,000 of Mean Strength.																	
Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	1·14	—	1·32	—	—	—	—	—	—	—	2·36	—	—	—	0·60	—
1·09	1·09	3·41	1·14	10·58	3·70	31·98	5·62	6·41	2·14	1·11	0·55	—	—	6·71	—	12·27	2·98
85·06	1·09	37·54	—	50·52	—	106·47	—	32·05	—	34·83	—	14·18	—	40·27	—	60·32	0·09
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	0·26	0·26	1·41	1·41	1·07	1·07	0·55	0·55	—	—	—	—	0·60	0·60
24·04	3·28	50·06	—	41·26	0·79	108·57	—	18·16	—	63·57	1·11	132·39	2·36	67·11	6·71	62·11	0·85
4·37	—	1·14	—	0·26	—	6·32	—	—	—	—	—	—	—	—	—	2·04	—
112·57	5·46	93·29	1·14	104·21	4·76	254·74	7·03	57·69	3·21	100·06	2·21	148·94	2·36	114·09	6·71	137·94	4·52
44·81	—	135·38	1·14	79·34	0·26	45·68	—	379·27	1·07	262·58	1·11	468·09	—	93·96	—	139·04	0·43
—	—	1·14	—	0·53	0·26	0·70	—	—	—	0·55	—	—	—	—	—	0·51	0·09
49·18	—	100·11	—	92·30	—	43·22	—	6·41	—	147·60	—	80·38	—	40·27	—	78·21	—
9·84	—	106·94	—	19·84	—	29·16	—	9·62	—	19·90	—	177·31	2·36	20·13	—	32·71	0·09
224·04	—	153·58	—	137·32	—	141·25	—	164·53	—	120·51	—	115·84	—	53·69	—	140·74	—
283·06	—	360·64	—	239·35	—	213·63	—	180·56	—	288·00	—	373·52	2·36	114·09	—	251·66	0·09
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
13·12	—	6·83	—	5·03	—	3·51	—	—	—	1·11	—	4·73	—	—	—	4·34	—
—	—	—	—	—	—	0·70	—	—	—	—	—	—	—	—	—	0·17	—
6·56	—	3·41	—	21·42	—	11·24	—	10·68	—	29·30	—	4·73	—	—	—	15·93	—
44·81	—	13·65	—	15·34	—	15·11	—	6·41	—	49·75	—	179·67	—	6·71	—	27·86	—
34·97	—	23·44	—	26·71	0·26	20·38	—	3·21	—	33·72	—	35·46	—	—	—	25·13	0·09
3·28	—	5·69	1·14	1·59	—	2·46	—	3·21	—	1·11	—	33·10	14·18	—	—	3·41	0·60
12·03	—	10·24	—	12·43	0·26	7·38	—	4·27	1·07	3·32	—	11·82	—	—	—	8·77	0·17
20·77	2·18	19·34	1·14	5·29	—	7·38	—	7·48	1·07	19·90	—	11·82	—	6·71	—	10·73	0·34
—	—	1·14	—	2·12	—	0·35	—	1·07	—	1·66	—	4·73	—	—	—	1·36	—
21·86	—	5·69	—	14·28	—	14·76	—	7·48	—	13·27	—	16·55	—	—	—	13·55	—
42·62	—	6·83	—	11·37	—	9·14	—	8·55	—	16·03	—	9·46	—	—	—	13·21	—
24·04	—	9·10	—	8·73	—	3·16	0·35	5·34	1·07	16·03	0·55	28·37	—	—	—	10·05	0·26
25·14	2·18	38·68	1·14	20·89	0·53	26·00	0·35	16·03	1·07	29·30	0·55	106·38	2·36	6·71	—	27·60	0·77
209·84	6·56	229·81	3·41	105·00	1·32	178·50	2·81	87·61	—	169·15	2·21	375·89	26·00	40·27	—	157·78	3·15
61·20	—	38·68	—	32·27	—	16·16	—	61·97	—	65·78	—	49·55	—	6·71	—	38·68	—
2·19	—	2·28	—	3·17	0·26	1·05	—	1·07	—	5·53	1·11	7·09	—	—	—	2·81	0·34
233·68	—	35·27	1·14	115·05	—	94·52	—	327·99	—	84·58	—	87·47	—	6·71	—	123·27	—
8·74	—	7·96	—	2·64	—	5·27	—	3·21	—	3·87	—	11·82	—	—	—	4·69	—
34·97	—	23·89	—	20·37	—	14·76	—	9·62	—	22·11	—	18·91	—	6·71	—	19·59	—
142·08	—	143·34	—	53·95	—	63·95	—	74·79	—	84·58	—	94·56	—	26·85	—	77·44	—
3·28	—	—	—	0·79	—	—	—	—	—	0·55	—	2·36	—	—	—	0·68	—
3·28	2·18	—	1·14	1·32	0·53	1·05	0·70	6·41	3·20	0·55	1·11	—	2·36	13·42	6·71	1·71	1·19
151·91	—	128·28	—	101·03	0·79	121·22	0·70	103·63	1·07	159·76	2·76	141·84	—	67·11	—	122·08	0·94
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1·09	—	—	—	1·32	—	2·11	—	—	—	3·87	—	—	—	—	—	1·62	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1542·08	18·56	1346·99	11·38	1005·55	9·26	1134·93	11·95	1367·52	12·82	1466·00	11·61	2219·86	49·65	510·07	13·42	1241·61	12·95

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ABSTRACT No. XXIV.—TABLE, taken from the REPORT of the PRINCIPAL MEDICAL OFFICER, showing the STATIONS in the MADRAS COMMAND at which the ADMISSIONS and DEATHS from ENTERIC FEVER took place in each of the four quarters of the Year 1887.

Divisions.	Stations.	1st Quarter.		2nd Quarter.		3rd Quarter.		4th Quarter.		Total.	
		Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.
Eastern District -	St. Thomas' Mount.	—	—	—	—	1	1	—	—	1	1
Southern District -	Wellington -	—	—	—	—	—	--	1	—	1	—
	Malliapooram	—	—	2	—	—	1	—	—	2	1
Bangalore Division, Belgaum and Ceded Districts -	Bangalore -	5	3	8	2	12	3	6	3	31	11
	Bellary -	1	1	—	—	7	2	—	—	8	3
	Belgaum -	1	—	—	—	—	—	—	—	1	—
Hyderabad Subsidiary Force.	Secunderabad	10	2	7	1	61	12	13	1	91	16
Nagpore Force -	Kamptee -	1	1	1	1	4	—	—	—	6	2
British Burma Division.	Rangoon -	—	—	—	—	2	1	—	—	2	1
Marching -	On the March	—	—	1	—	—	—	—	—	1	—
	Total -	18	7	19	4	87	20	20	4	144	35

ABSTRACT No. XXV.—TABLE, taken from the REPORT of the PRINCIPAL MEDICAL OFFICER, showing the STATIONS in the MADRAS COMMAND at which the ADMISSIONS and DEATHS from CHOLERA took place in each of the four quarters of the Year 1887.

Divisions.	Stations.	1st Quarter.		2nd Quarter.		3rd Quarter.		4th Quarter.		Total.	
		Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.
Bangalore Division, Belgaum and Ceded Districts.	Bangalore -	—	—	—	—	1	1	—	—	1	1
Hyderabad Subsidiary Force.	Secunderabad	—	—	—	—	4	4	—	—	4	4
Nagpore Force.	Kamptee -	—	—	—	—	1	1	—	—	1	1
British Burma Division.	Thayetmyo	1	1	—	—	—	—	—	—	1	1
	Total -	1	1	—	—	6	6	—	—	7	7

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ABSTRACT No. XXVI.—TABLE, taken from the REPORT of the PRINCIPAL MEDICAL OFFICER, showing the prevalence of DYSENTERY, DIARRHŒA, and HEPATITIS in each of the DIVISIONS in the MADRAS COMMAND for 1887.

Divisions.	Eastern District.		Southern District.		Bangalore Division, Belgaum and Ceded Districts.		Hyderabad Subsidiary Force.		Nagpore Force.		British Burma Division.		On the March.		Total.	
Strength.	1,098		1,119		3,781		2,846		936		1,809		149		11,738	
Diseases.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.
Dysentery	69	4	58	—	156	3	309	—	17	—	115	2	10	1	729	10
Diarrhœa	71	—	48	—	71	—	151	—	11	—	62	—	4	—	418	—
Hepatitis and Abscess of Liver	43	13	53	7	54	5	80	8	11	—	79	4	—	—	320	37
Total	183	17	154	7	281	8	540	8	39	—	256	6	14	1	1,467	47
Ratio per 1,000 of Strength.																
Dysentery	62·84	3·64	47·36	—	41·26	·80	108·57	—	18·16	—	63·57	1·11	67·12	6·71	62·11	0·85
Diarrhœa	64·66	—	42·90	—	18·78	—	53·06	—	11·75	—	34·27	—	26·84	—	35·61	—
Hepatitis and Abscess of Liver	39·16	11·84	47·36	6·26	14·28	1·32	28·11	2·81	11·75	—	43·67	2·21	—	—	27·26	3·15
Total	166·67	15·48	137·62	6·26	74·32	2·12	189·74	2·81	41·67	—	141·51	3·32	93·96	6·71	124·98	4·00

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ABSTRACT No. XXVII.—TABLE, taken from the REPORT of the PRINCIPAL MEDICAL OFFICER, showing the PREVALENCE and MORTALITY in the MADRAS COMMAND, due to DYSENTERY, DIARRHŒA, and HEPATITIS, in each Quarter of the Year 1887.

—	Strength.	Dysentery.				Diarrhœa.				Hepatitis (including Abscess of Liver).				Total.			
		Number.		Ratio per 1,000 of Strength.		Number.		Ratio per 1,000 of Strength.		Number.		Ratio per 1,000 of Strength.		Number.		Ratio per 1,000 of Strength.	
		Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.
1st Quarter -	10,915	162	3	14·84	0·27	127	—	11·64	—	76	6	6·96	0·55	365	9	33·44	0·82
2nd „ -	12,049	161	2	13·36	0·17	84	—	6·97	—	80	10	6·64	0·83	325	12	26·97	1·00
3rd „ -	12,215	214	3	17·52	0·25	128	—	10·48	—	83	8	6·79	0·65	425	11	34·79	0·90
4th „ -	11,773	192	2	16·31	0·17	79	—	6·71	—	81	13	6·88	0·10	352	15	29·90	1·27
Total for the Year	11,738	729	10	62·11	0·85	418	—	35·61	—	320	37	27·26	3·15	1,467	47	124·98	4·00

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ABSTRACT XXVIII.

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ABSTRACT No. XXVIII.—TABLE showing the AVERAGE STRENGTH, ADMISSICK among the TROOPS stationed at BOMBAY.

Average Strength, 11,283. Diseases.	Admissions into Hospital.	Deaths. In the Command.	Deaths. Of Invalids.	Deaths. Total.	Invalids. Number sent Home.	Invalids. Number finally Discharged the Service.	Average Number Constantly Sick.
I.—GENERAL DISEASES.							
GROUP "A."							
Sub-Group I. Small-pox	1	—	—	—	—	—	·03
Other Eruptive Fevers	4	—	—	—	—	—	·51
Enteric Fever	127	38	—	38	—	—	15·28
Other Continued Fevers	1,057	2	—	2	—	—	44·93
Yellow Fever	—	—	—	—	—	—	—
Cholera	39	28	—	28	—	—	·29
Dysentery	244	9	2	11	18	1	18·44
Other Diseases	2	—	—	—	—	—	·07
Total	1,474	77	2	79	18	1	79·55
Sub-Group II.—Malarial Fevers	3,076	8	—	8	7	1	103·57
Sub-Group III.—Septic Diseases	10	2	—	2	—	—	·60
Sub-Group IV. Syphilis, Primary	933	—	—	—	—	—	74·12
„ Secondary	376	—	—	—	18	5	38·49
Gonorrhœa	1,574	—	—	—	—	—	98·90
Total	2,883	—	—	—	18	5	211·57
Sub-Group V.—Hydrophobia, &c.	—	—	—	—	—	—	—
GROUP "B."							
Sub-Group I.—Parasitic Diseases	56	—	—	—	1	—	1·77
Sub-Group II. Scurvy	10	—	—	—	—	—	·37
Alcoholism	126	3	—	3	—	—	3·07
GROUP "C."							
Debility, &c.	351	—	—	—	67	10	22·52
GROUP "D."							
Rheumatism	313	—	—	—	14	3	19·26
Tubercular Diseases	28	8	6	14	18	16	6·92
Other Diseases	251	1	2	3	12	1	12·76
II.—LOCAL DISEASES.							
Diseases of the—							
1. Nervous System Nervous Diseases	91	3	—	3	12	4	5·27
1. Nervous System Mental „	53	—	—	—	15	16	4·94
2. Eye	210	—	—	—	16	11	14·23
3 & 4. Other Organs of Special Senses	175	—	—	—	7	10	8·08
5. Circulatory System	148	3	—	3	46	27	15·37
6. Respiratory „	282	6	—	6	10	6	19·77
7. Digestive „	1,596	14	3	17	22	6	60·52
8. Lymphatic and Glandular System	242	—	—	—	2	—	24·52
9. Urinary System	24	2	1	3	5	3	2·29
10. Generative „	682	—	—	—	6	4	32·83
11. Organs of Locomotion	52	1	1	2	7	3	3·83
12. Connective Tissue	174	—	—	—	—	—	7·41
13. Skin	792	—	—	—	1	—	31·45
III.—POISONS	3	—	—	—	—	—	·11
IV.—INJURIES.							
1. General	19	16	—	16	1	—	1·36
2. Local	1,238	4	—	4	12	7	53·54
3. In Action	—	—	—	—	—	5	—
No appreciable disease	15	—	—	—	—	—	·79
Cause unknown (refers to deaths only)	—	—	—	—	—	—	—
General Total	14,373	148	15	163	317	139	747·94
* Average of 10 years, 1877–86	—	—	—	—	—	—	—

† The average ratios for 10 years will be given in future years. The average ratios for the two that for

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SIGNS into HOSPITAL, DEATHS, NUMBERS INVALIDED and CONSTANTLY during the Year 1887, with the Ratios per 1,000 of the Strength.*

Ratio per 1,000.					† Ratios per 1,000 for 1886.				
Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged.	Constantly Sick.	Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged.	Constantly Sick.
·1	—	—	—	—	·2	—	—	—	·02
·4	—	—	—	·05	·5	·09	—	—	·09
11·3	3·37	—	—	1·35	12·2	4·18	—	—	1·51
98·7	·18	—	—	3·98	102·5	·27	—	—	3·67
—	—	—	—	—	—	—	—	—	—
3·5	2·48	—	—	·03	·4	·36	—	—	—
21·6	·97	1·60	·09	1·63	22·7	·64	1·09	·18	1·44
·2	—	—	—	·01	·3	—	—	—	·01
130·8	7·00	1·60	·09	7·05	138·8	5·54	1·09	·18	6·74
272·6	·71	·62	·09	9·18	389·3	·09	1·18	—	11·07
·9	·18	—	—	·05	·6	—	—	—	·02
82·7	—	—	—	6·57	106·0	—	—	—	8·22
33·3	—	1·60	·44	3·41	33·6	—	1·18	·36	2·57
139·5	—	—	—	8·77	151·7	—	·27	·09	9·99
255·5	—	1·60	·44	18·75	293·3	—	1·45	·46	21·08
—	—	—	—	—	·2	·18	—	—	—
5·0	—	·09	—	·16	5·5	—	—	—	·17
·9	—	—	—	·03	2·4	—	·27	—	·18
11·2	·27	—	—	·27	9·2	·27	·09	—	·36
31·1	—	5·94	·89	2·00	38·8	—	5·82	1·45	2·29
27·7	—	1·24	·27	1·71	29·9	·27	1·27	·46	2·10
2·5	1·24	1·60	1·42	·61	6·3	1·00	1·64	1·09	·70
22·2	·27	1·06	·09	1·13	20·4	·18	·64	·09	1·12
8·1	·27	1·06	·35	·48	13·7	·09	1·55	·55	·82
4·6	—	1·33	1·42	·44	2·7	—	·82	1·45	·29
18·6	—	1·42	·97	1·26	16·9	—	·91	·82	1·19
15·5	—	·62	·89	·72	16·5	—	1·64	·82	·89
13·1	·27	4·08	2·39	1·36	20·0	·46	3·27	1·36	1·69
25·0	·53	·89	·53	1·75	37·6	·73	1·18	·36	2·42
141·4	1·51	1·95	·53	5·36	153·3	1·64	2·00	·36	6·05
21·4	—	·18	—	2·17	25·0	·09	·18	·27	2·34
2·1	·27	·44	·27	·20	3·2	·18	·46	·18	·36
60·5	—	·53	·35	2·88	57·0	—	·36	·36	2·88
4·6	·18	·62	·27	·34	6·7	—	·73	·36	·49
15·4	—	—	—	·66	24·3	—	—	—	·98
70·2	—	·09	—	2·79	67·4	—	·36	—	2·72
·3	—	—	—	·01	·4	·09	—	—	·01
1·7	1·42	·09	—	·12	3·5	1·09	·18	—	·18
109·7	·35	1·06	·62	4·75	123·6	1·45	1·00	·36	4·79
—	—	—	·44	—	—	—	—	—	—
1·3	—	—	—	·07	1·5	—	—	—	·05
—	—	—	—	—	—	—	—	—	—
1273·9	14·45	28·10	12·32	66·30	1488·0	13·36	28·09	11·00	78·98
1597·0	17·13	42·65	15·79	65·36	—	—	—	—	—

years 1886 and 1887 will be given in the Report for 1888; those for the three years 1886 to 1888, in 1889, &c., &c.

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ABSTRACT No. XXIX.—The following TABLE, taken from the REPORT of the PRINCIPAL MEDICAL OFFICER, shows the ADMISSIONS and DEATHS which took place in the PRINCIPAL STATIONS in the BOMBAY COMMAND during the Year 1887.

Divisions and Districts.	Stations.	Annual Average Strength.	Number of Admissions.	Number of Deaths.	Ratio per 1,000 of the Strength.			
					Admissions.	Deaths.	Average of 10 Years, 1877–86. Admissions.	Deaths.
Bombay district, &c.	Colaba	751	1,014	7	1350·2	9·32	1668·0	15·92
	Deolali	543	421	4	775·3	7·37	1403·3	18·85
	Aden	850	869	10	1022·4	11·76	1043·5	14·25
	Ahmedabad	223	459	2	2058·3	8·97	1914·2	19·53
	Deesa	299	540	3	1806·0	10·03	1388·3	14·97
Sind	Karachi	969	1,070	10	1104·2	10·32	2047·9	20·27
	Hyderabad	468	731	2	1562·0	4·27	1668·9	10·85
Poona	Poona	1,951	1,983	14	1016·4	7·17	1514·5	10·78
	Kirkee	748	888	7	1187·2	9·36	1479·1	10·25
	Ahmednagar	777	904	14	1163·4	18·02	1727·6	13·79
	Satara	182	295	—	1620·9	—	1690·6	7·99
Mhow	Mhow	1,478	1,556	23	1052·8	15·56	1858·0	10·24
	Nasirabad	754	1,434	10	1901·9	13·26	1760·4	21·73
	Neemuch	504	1,021	30	2025·8	59·52	2303·5	14·33
	Asirgarh	126	216	1	1714·3	7·94	1975·8	16·51
	Indore	108	214	6	1981·5	55·56	2044·8	19·60
	Khundwa	2	2	—	1000·0	—	—	—
	Sanitaria	254	634	5	2496·1	19·69	1918·5	22·19
	On the march, &c.	296	122	—	412·3	—	750·1	23·12
	Total	11283	14378	148	1273·9	13·12	—	—

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ABSTRACT XXX.

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ABSTRACT No. XXX.—TABLE taken from the PRINCIPAL MEDICAL OFFICER, in each of the ADMINISTRATIVE CIRCLES in the BOMBAY COMMAND,

Military Division.	Bombay District, &c.		Sind.		Poona.		Mhow.		Sanitaria.		Troops on the March.		Total.	
Average Strength	2,666		1,437		3,658		2,972		254		296		11,283	
Diseases.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.
I.—GENERAL DISEASES.														
GROUP "A."														
Sub-Group I. Small-pox	1	—	—	—	—	—	—	—	—	—	—	—	1	—
Other Eruptive Fevers	2	—	1	—	1	—	—	—	—	—	—	—	4	—
Enteric Fever	8	2	20	6	22	15	77	15	—	—	—	—	127	38
Other Continued Fever	442	—	125	—	340	1	132	1	14	—	4	—	1,057	2
Yellow Fever	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Cholera	—	—	—	—	5	5	33	23	1	—	—	—	39	28
Dysentery	72	2	56	2	62	2	39	3	12	—	3	—	214	9
Other Diseases	—	—	—	—	1	—	1	—	—	—	—	—	2	—
Total	525	4	202	8	431	23	282	42	27	—	7	—	1,474	77
Sub-Group II.—Malarial Fevers	270	3	221	—	545	1	1761	3	244	1	35	—	3,076	8
Sub-Group III.—Septic Diseases	1	—	1	—	6	—	2	2	—	—	—	—	10	2
Sub-Group IV. Syphilis, Primary	179	—	89	—	416	—	203	—	37	—	9	—	933	—
„ Secondary	64	—	46	—	122	—	108	—	34	—	2	—	376	—
Gonorrhœa	403	—	154	—	594	—	394	—	18	—	11	—	1,574	—
Total	646	—	289	—	1,132	—	705	—	89	—	22	—	2,883	—
Sub-Group V.—Hydrophobia, &c.	—	—	—	—	—	—	—	—	—	—	—	—	—	—
GROUP "B."														
Sub-Group I.—Parasitic Diseases	14	—	5	—	23	—	11	—	3	—	—	—	56	—
Sub-Group II. Scurvy	1	—	4	—	3	—	1	—	1	—	—	—	10	—
Alcoholism	44	2	30	—	28	—	18	1	5	—	1	—	126	3
GROUP "C."														
Debility, &c.	78	—	16	—	88	—	123	—	44	—	2	—	351	—
GROUP "D."														
Rheumatism	84	—	25	—	111	—	75	—	16	—	2	—	313	—
Tubercular Diseases	13	3	5	2	5	2	4	1	1	—	—	—	28	8
Other Diseases	44	—	29	—	123	—	34	—	21	1	—	—	251	1
II.—LOCAL DISEASES.														
Diseases of the—														
1. Nervous System Nervous Diseases	45	1	5	—	16	2	12	—	7	—	6	—	91	3
„ Mental	33	—	2	—	9	—	8	—	—	—	—	—	52	—
2. Eye	42	—	24	—	89	—	51	—	3	—	1	—	210	—
3 & 4. Other Organs of Special Senses	43	—	61	—	33	—	34	—	4	—	—	—	175	—
5. Circulatory System	41	1	10	—	69	2	21	—	7	—	—	—	148	3
6. Respiratory „	83	2	49	—	71	1	65	3	8	—	6	—	282	6
7. Digestive „	409	2	273	1	398	1	421	7	71	3	26	—	1,596	14
8. Lympathic and Glandular System	70	—	35	—	61	—	55	—	20	—	1	—	242	—
9. Urinary System	11	—	—	—	11	—	2	2	—	—	—	—	24	2
10. Generative „	220	—	87	—	210	—	193	—	19	—	3	—	682	—
11. Organs of Locomotion	18	—	8	—	13	—	11	1	1	—	1	—	52	1
12. Connective Tissue	48	—	21	—	74	—	29	—	2	—	—	—	174	—
13. Skin	207	—	257	—	164	—	147	—	15	—	2	—	792	—
III.—POISONS	3	—	—	—	—	—	—	—	—	—	—	—	3	—
IV.—INJURIES.														
1. General	9	7	2	1	2	3	5	5	1	—	—	—	19	16
2. Local	301	1	179	—	354	—	372	3	25	—	7	—	1,238	4
3. In Action	—	—	—	—	—	—	—	—	—	—	—	—	—	—
No appreciable disease	—	—	11	—	3	—	1	—	—	—	—	—	15	—
Cause unknown (refers to deaths only)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Total	3,303	26	1,801	12	4,070	35	4,443	70	634	5	122	—	14,373	118

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showing the PREVALENCE and MORTALITY of the Different Classes of DISEASES with the Ratios per 1,000 of the Strength for the Year 1887.

Bombay District, &c.		Sind.		Poona.		Mhow.		Sanitaria.		Troops on the March.		Total.	
Ratio per 1,000 of mean Strength.													
Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.
·4	—	—	—	—	—	—	—	—	—	—	—	·1	—
·7	—	·7	—	·3	—	—	—	—	—	—	—	·4	—
3·0	·75	13·9	4·18	6·0	4·10	25·9	5·05	—	—	—	—	11·3	3·37
165·8	—	87·0	—	92·9	·27	44·4	·34	55·5	—	13·5	—	98·7	·18
—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	1·4	1·37	11·1	7·74	3·9	—	—	—	3·5	2·48
27·0	·75	39·0	1·39	16·9	·55	13·1	1·01	47·2	—	10·1	—	21·6	·80
—	—	—	—	·3	—	·3	—	—	—	—	—	·2	—
196·9	1·50	140·6	5·57	117·8	6·29	94·8	14·14	106·6	—	23·6	—	130·8	6·83
101·3	1·13	153·8	—.	149·0	·27	592·5	1·01	960·6	3·94	118·2	—	272·6	·71
·4	—	·7	—	1·6	—	·7	·67	—	—	—	—	·9	·18
67·1	—	61·9	—	113·7	—	68·3	—	145·7	—	30·4	—	82·7	—
24·0	—	32·0	—	33·4	—	36·3	—	133·8	—	6·8	—	33·3	—
151·2	—	107·2	—	162·4	—	132·6	—	70·9	—	37·2	—	139·5	—
242·3	—	201·1	—	309·5	—	237·2	—	350·4	—	74·4	—	255·5	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—
5·3	—	3·5	—	6·3	—	3·7	—	11·8	—	—	—	5·0	—
·4	—	2·8	—	·8	—	·3	—	3·9	—	—	—	·9	—
16·5	·75	20·9	—	7·7	—	6·1	·34	19·7	—	3·4	—	11·2	·27
29·3	—	11·1	—	24·1	—	41·4	—	173·2	—	6·8	—	31·1	—
31·5	—	17·4	—	30·3	—	25·2	—	63·0	—	6·8	—	27·7	—
4·9	1·13	3·5	1·39	1·4	·55	1·3	·34	3·9	—	—	—	2·5	·71
16·5	—	20·2	—	33·6	—	11·4	—	82·7	3·94	—	—	22·2	·09
16·9	·37	3·5	—	4·4	·55	4·0	—	27·6	—	20·3	—	8·1	·27
12·4	—	1·4	—	2·5	—	2·7	—	—	—	—	—	4·6	—
15·8	—	16·7	—	24·3	—	17·2	—	11·8	—	3·4	—	18·6	—
16·1	—	42·4	—	9·0	—	11·4	—	15·7	—	—	—	15·5	—
15·4	·37	7·0	—	18·9	·55	7·1	—	27·6	—	—	—	13·1	·27
31·1	·75	34·1	—	19·4	·27	21·9	1·01	31·5	—	20·3	—	25·0	·53
153·4	·75	190·0	·70	108·3	·27	141·7	2·36	279·5	11·81	87·8	—	141·4	1·24
26·3	—	24·4	—	16·7	—	18·5	—	78·7	—	3·4	—	21·4	—
4·1	—	—	—	3·0	—	·7	·67	—	—	—	—	2·1	·18
83·5	—	25·7	—	57·4	—	64·9	—	74·8	—	10·1	—	60·5	—
6·8	—	5·6	—	3·6	—	3·7	·34	3·9	—	3·4	—	4·6	·09
18·0	—	14·6	—	20·2	—	9·8	—	7·9	—	—	—	15·4	—
77·6	—	178·8	—	44·8	—	49·5	—	59·1	—	6·8	—	70·2	—
1·1	—	—	—	—	—	—	—	—	—	—	—	·3	—
3·4	2·63	1·4	·70	·5	·82	1·7	1·68	3·9	—	—	—	1·7	1·42
112·9	·37	124·6	—	96·8	—	125·2	1·01	98·4	—	23·6	—	109·7	·35
—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	7·7	—	·3	—	·3	—	—	—	—	—	1·3	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—
1238·9	9·75	1253·3	8·35	1112·6	9·57	1494·9	23·55	2496·1	19·69	412·3	—	1273·9	13·12

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ABSTRACT No. XXXI.—TABLE taken from the REPORT of the PRINCIPAL MEDICAL OFFICER showing the STATIONS in the BOMBAY COMMAND at which the ADMISSIONS and DEATHS from ENTERIC FEVER took place in each of the four quarters of the Year 1887.

Divisions and Districts.	Stations.	1st Quarter.		2nd Quarter.		3rd Quarter.		4th Quarter.		Total.	
		Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.
Bombay District, &c.	Colaba	2	1	—	—	—	—	—	—	2	1
	Deesa	5	1	1	—	—	—	—	—	6	1
Sind	Karachi	4	—	5	2	4	1	6	3	19	6
	Hyderabad	—	—	1	—	—	—	—	—	1	—
Poona	Poona	2	—	3	2	2	2	—	1	7	5
	Kirkee	1	—	—	1	2	1	—	1	3	3
	Ahmednagar	1	1	2	—	7	5	2	1	12	7
Mhow	Mhow	2	—	30	5	19	6	5	2	56	13
	Nasirabad	2	—	4	—	4	1	11	1	21	2
	Total	19	3	46	10	38	16	24	9	127	38

ABSTRACT No. XXXII.—TABLE taken from the REPORT of the PRINCIPAL MEDICAL OFFICER showing the STATIONS in the BOMBAY COMMAND at which the ADMISSIONS and DEATHS from CHOLERA took place in each of the four quarters of the Year 1887.

Divisions and Districts.	Stations.	1st Quarter.		2nd Quarter.		3rd Quarter.		4th Quarter.		Total.	
		Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.
Poona	Poona	—	—	—	—	—	—	1	1	1	1
	Kirkee	—	—	—	—	2	2	—	—	2	2
	Ahmednagar	—	—	—	—	2	2	—	—	2	2
	Purandhar	1	—	—	—	—	—	—	—	1	—
Mhow	Mhow	—	—	—	—	7	4	1	1	8	5
	Nasirabad	—	—	—	—	1	—	—	—	1	—
	Neemuch	—	—	—	—	23	17	—	—	23	17
	Indore	—	—	—	—	1	1	—	—	1	1
	Total	1	—	—	—	36	26	2	2	39	23

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ABSTRACT No. XXXIII.—Table taken from the REPORT of the PRINCIPAL MEDICAL OFFICER, showing the PREVALENCE of DYSENTERY, DIARRHŒA, HEPATITIS, and ABSCESS OF LIVER in each DIVISION in the BOMBAY COMMAND for the Year 1887.

Divisions and Districts.	Bombay District, Northern Division, and Aden.		Sind.		Poona.		Mhow.		On the March, &c.		Total.	
Strength.	2,762		1,437		3,783		3,005		296		11,283	
Diseases.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.
Dysentery - - -	81	2	56	2	65	2	39	3	3	—	244	9
Diarrhœa - - -	118	—	43	—	145	—	134	1	19	—	459	1
Hepatitis and Abscess of Liver -	58	3	18	—	55	2	36	4	—	—	167	9
Total - -	257	5	117	2	265	4	209	8	22	—	870	19
Ratio per 1,000 of Strength.												
Dysentery - - -	29·3	·72	39·0	1·39	17·2	·53	13·0	1·00	10·1	—	21·6	·80
Diarrhœa - - -	42·7	—	29·9	—	38·3	—	44·6	·33	64·2	—	40·7	·09
Hepatitis and Abscess of Liver -	21·0	1·09	12·5	—	14·5	·53	12·0	1·33	—	—	14·8	·80
Total -	93·0	1·81	81·4	1·39	70·0	1·06	69·5	2·66	74·3	—	77·1	1·68

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ABSTRACT No, XXXIV.—TABLE taken from the REPORT of the PRINCIPAL MEDICAL OFFICER showing the PREVALENCE and MORTALITY in the BOMBAY COMMAND, due to DYSENTERY, DIARRHŒA, HEPATITIS, and ABSCESS OF LIVER in each Quarter of the Year 1887.

Quarters.	Strength.	Dysentery.				Diarrhœa.				Hepatitis and Abscess of Liver.				Total.			
		Number.		Ratio per 1,000 of the Strength.		Number.		Ratio per 1,000 of the Strength.		Number.		Ratio per 1,000 of the Strength.		Number.		Ratio per 1,000 of the Strength.	
		Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.
1st Quarter -	11,159	54	3	4·8	·27	89	—	7·9	—	33	—	3·0	—	176	3	15·8	·27
2nd „ -	11,309	45	3	4·0	·27	80	—	7·0	—	42	2	3·7	·18	167	5	14·8	·44
3rd „ -	10,649	73	1	6·9	·09	175	1	16·4	·09	60	2	5·6	·19	308	4	28·9	·38
4th „ -	12,029	72	2	6·0	·17	115	—	9·6	—	32	5	2·7	·42	219	7	18·2	·58
Total for Year -	11,283	244	9	21·6	·80	459	1	40·7	·09	167	9	14·8	·80	870	19	77·1	1·68

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ABSTRACT XXXV.

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ABSTRACT No. XXXV.—TABLE showing the AVERAGE STRENGTH, SICK among the TROOPS stationed in EGYPT during the Year 1887, with

Average Strength, 5,272. Diseases.	Admissions into Hospital.	Deaths. In the Command.	Deaths. Of Invalids.	Deaths. Total.	Invalids. Number sent Home.	Invalids. Number finally Discharged the Service.	Average Number Constantly Sick.
I.—GENERAL DISEASES.							
GROUP "A."							
Sub-Group I. Small-pox	26	4	—	4	—	—	3·85
Other Eruptive Fevers	32	—	—	—	—	—	2·52
Enteric Fever	157	37	—	37	25	—	25·00
Other Continued Fevers	1,092	—	—	—	7	—	35·29
Yellow Fever	—	—	—	—	—	—	—
Cholera	—	—	—	—	—	—	—
Dysentery	230	5	—	5	11	3	18·44
Other Diseases	5	—	—	—	—	—	·17
Total	1,542	46	—	46	43	3	85·27
Sub-Group II.—Malarial Fevers	126	—	—	—	—	—	6·19
Sub-Group III.—Septic Diseases	10	—	—	—	—	—	·45
Sub-Group IV. Syphilis, Primary	208	—	—	—	—	—	18·91
„ Secondary	173	—	—	—	6	1	16·03
Gonorrhœa	478	—	—	—	—	—	36·39
Total	859	—	—	—	6	1	71·33
Sub-Group V.—Hydrophobia, &c.	—	—	—	—	—	—	—
GROUP "B."							
Sub-Group I.—Parasitic Diseases	21	—	—	—	—	—	·46
Sub-Group II. Scurvy	—	—	—	—	—	—	—
Alcoholism	34	1	—	1	1	—	1·55
GROUP "C."							
Debility, &c.	117	—	—	—	18	10	9·37
GROUP "D."							
Rheumatism	77	1	—	1	3	—	5·39
Tubercular Diseases	11	4	1	5	3	2	3·47
Other Diseases	58	—	—	—	—	1	2·96
II.—LOCAL DISEASES.							
Diseases of the—							
1. Nervous System Nervous Diseases	17	3	—	3	10	15	1·77
Mental „	10	—	—	—	9	12	2·06
2. Eye	257	—	—	—	2	1	9·72
3 & 4. Other Organs of Special Senses	56	—	—	—	1	3	2·64
5. Circulatory System	66	4	—	4	16	24	8·81
6. Respiratory „	107	3	—	3	1	1	8·64
7. Digestive „	632	7	—	7	11	6	27·96
8. Lymphatic and Glandular System	180	—	—	—	3	—	21·15
9. Urinary System	9	—	—	—	1	1	·46
10. Generative „	624	—	—	—	1	—	46·35
11. Organs of Locomotion	48	—	—	—	4	5	3·66
12. Connective Tissue	157	—	—	—	2	—	9·48
13. Skin	305	—	—	—	1	—	13·91
III.—POISONS	2	1	—	1	—	—	·01
IV.—INJURIES.							
1. General	4	4	—	4	1	—	·43
2. Local	474	6	—	6	4	6	21·16
3. In Action	—	—	—	—	—	—	—
No appreciable disease	18	—	—	—	—	—	·52
Cause unknown (refers to deaths only)	—	—	—	—	—	—	—
General Total	5,821	80	1	81	141	91	365·19
* Average of 4 years, 1883–86	—	—	—	—	—	—	—

† The average ratios for 10 years will be given in future years. The average ratios for the two in that

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ADMISSIONS into HOSPITAL, DEATHS, NUMBERS INVALIDED and CONSTANTLY the Ratios per 1,000 of the Strength, and the Average Ratios for 10 Years.*

Ratio per 1,000.					Ratios per 1,000 for 1886.†				
Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged.	Constantly Sick.	Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged.	Constantly Sick.
4·9	·76	—	—	·73	4·6	·27	—	—	·30
6·1	—	—	—	·48	·6	—	—	—	·05
29·8	7·02	4·74	—	4·74	66·3	21·79	24·77	·09	9·46
207·1	—	1·33	—	6·69	164·3	—	4·53	—	7·27
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—
43·6	·95	2·09	·57	3·50	72·0	3·16	8·86	·36	5·68
1·0	—	—	—	·03	3·9	·09	—	—	·19
293·5	8·72	8·16	·57	16·17	311·7	25·31	38·15	·45	22·97
23·9	—	—	—	1·17	13·9	—	·90	·09	·70
1·9	—	—	—	·09	3·3	·27	·09	—	·21
39·4	—	—	—	3·59	78·2	—	·18	—	6·06
32·8	—	1·14	·19	3·04	23·0	—	1·18	·54	1·71
90·7	—	—	—	6·90	98·1	—	·18	—	5·37
163·9	—	1·14	·19	13·53	199·3	—	1·54	·54	13·16
—	—	—	—	—	—	—	—	—	—
4·0	—	—	—	·09	5·1	·09	—	—	·14
—	—	—	—	—	·4	—	—	—	·02
6·4	·19	·19	—	·29	6·7	·09	—	—	·23
22·2	—	3·41	1·90	1·78	60·4	—	12·66	4·07	3·33
14·6	·19	·57	—	1·02	30·6	·27	2·89	·54	2·13
2·1	·95	·57	·38	·66	3·5	·54	2·98	2·89	·59
11·0	—	—	·19	·57	6·9	·09	·27	·09	·38
3·2	·57	1·90	2·84	·34	11·0	·63	1·72	·63	·63
1·9	—	1·71	2·28	·39	1·3	—	1·36	2·26	·18
48·7	—	·38	·19	1·84	65·6	—	1·54	·54	2·19
10·6	—	·19	·57	·50	14·5	—	1·09	1·00	·70
12·5	·76	3·03	4·55	1·67	15·3	·27	6·51	5·79	1·43
20·3	·57	·19	·19	1·64	45·0	1·81	2·26	1·36	2·99
119·9	1·53	2·09	1·14	5·30	200·9	2·08	4·79	1·09	7·84
34·1	—	·57	—	4·01	17·3	—	·45	·09	1·45
1·7	—	·19	·19	·09	2·8	·09	·45	·36	·17
118·4	—	·19	—	8·79	70·0	—	·45	·63	4·06
9·1	—	·76	·95	·69	5·1	—	·54	·63	·39
29·8	—	·38	—	1·80	24·6	—	·27	·18	1·04
57·9	—	·19	—	2·64	56·7	—	·54	—	2·57
·4	·19	—	—	·00	·2	·09	—	—	—
·8	·76	·19	—	·06	6·6	3·71	·27	—	·34
89·9	1·14	·76	1·14	4·01	89·8	1·36	1·54	·81	4·13
—	—	—	—	—	·1	·18	·63	·36	·16
3·4	—	—	—	·10	3·3	—	—	—	·09
—	—	—	—	—	—	—	—	—	—
1104·1	15·36	26·74	17·26	69·26	1271·9	36·88	83·89	24·40	74·17
1309·4	29·58	96·49	30·95	76·76	—	—	—	—	—

years 1886 to 1887 will be given in the Report for 1888; those for the three years 1886 to for 1889, &c., &c.

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ABSTRACT No. XXXVI.—TABLE showing the AVERAGE STRENGTH, SHIP proceeding on and returning from Foreign Service, and proceeding during the Year 1887.

Strength of W.O., N.C.O., and Men:	Passage Out.		Passage Home.	
Embarked	14,204		11,339	
Average Annual Strength	1,068		773	
	Admitted.	Died.	Admitted.	Died.
I.—GENERAL DISEASES.				
GROUP "A."				
Sub-Group I. Small-pox	—	—	—	—
Other Eruptive Fevers	5	—	3	—
Enteric Fever	—	—	—	—
Other Continued Fevers	22	—	25	—
Yellow Fever	—	—	—	—
Cholera	—	—	—	—
Dysentery	1	—	25	3
Other Diseases	—	—	—	—
Total	28	—	53	3
Sub-Group II.—Malarial Fevers	4	—	127	—
Sub-Group III.—Septic Diseases	6	—	—	—
Sub-Group IV. Syphilis, Primary	186	—	95	—
" Secondary	39	—	37	—
Gonorrhœa	312	—	132	—
Total	537	—	264	—
Sub-Group V.—Hydrophobia, &c.	—	—	—	—
GROUP "B."				
Sub-Group I.—Parasitic Diseases	—	—	1	—
Sub-Group II. Scurvy	—	—	—	—
Alcoholism	—	—	2	—
GROUP "C."				
Debility, &c.	11	—	35	—
GROUP "D."				
Rheumatism	26	—	16	—
Tubercular Diseases	2	—	3	2
Other Diseases	21	—	1	—
II.—LOCAL DISEASES.				
Diseases of the—				
1. Nervous System (Nervous Diseases)	7	—	3	—
1. Nervous System (Mental ")	2	—	2	—
2. Eye	15	—	10	—
3 & 4. Other Organs of Special Senses	9	—	7	—
5. Circulatory System	1	—	3	—
6. Respiratory "	60	4	61	3
7. Digestive "	115	—	51	1
8. Lymphatic and Glandular System	37	—	35	—
9. Urinary System	1	—	—	—
10. Generative "	160	—	119	—
11. Organs of Locomotion	7	—	3	—
12. Connective Tissue	30	—	19	—
13. Skin	158	—	59	—
III.—POISONS.				
IV.—INJURIES.				
1. General	—	—	1	1
2. Local	101	—	39	—
3. In Action	—	—	—	—
No appreciable disease	1	—	2	—
Cause unknown (refers to death only)	—	—	—	—
General Total	1,339	4	916	10

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ADMISSIONS into HOSPITAL, and DEATHS among the TROOPS ON BOARD from one Colony or Station to another, with the Ratio per 1,000 of the Strength

Intercolonial.		Ratio per 1,000 of the Strength.					
8,533 / 465		Passage Out.		Passage Home.		Intercolonial.	
Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.
—	—	—	—	—	—	—	—
—	—	4·7	—	3·9	—	—	—
—	—	—	—	—	—	—	—
21	—	20·6	—	32·4	—	45·2	—
—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—
2	—	·9	—	32·4	3·89	4·3	—
—	—	—	—	—	—	—	—
23	—	26·2	—	68·7	3·89	49·5	—
5	—	3·7	—	164·5	—	10·7	—
1	—	5·6	—	—	—	2·1	—
27	—	174·2	—	123·1	—	58·1	—
8	—	36·5	—	47·9	—	17·2	—
86	—	292·1	—	171·0	—	184·9	—
121	—	502·8	—	342·0	—	260·2	—
—	—	—	—	—	—	—	—
—	—	—	—	1·3	—	—	—
—	—	—	—	—	—	—	—
1	—	—	—	2·6	—	2·1	—
9	—	10·3	—	45·3	—	19·4	—
7	—	24·4	—	20·7	—	15·1	—
—	—	1·9	—	3·9	2·59	—	—
3	—	19·7	—	1·3	—	6·5	—
3	—	6·6	—	3·9	—	6·5	—
—	—	1·9	—	2·6	—	—	—
4	—	14·1	—	13·9	—	8·6	—
—	—	8·4	—	9·1	—	—	—
—	—	·9	—	3·9	—	—	—
6	—	56·2	3·74	79·0	3·89	13·9	—
26	—	107·7	—	66·1	1·29	55·9	—
10	—	34·6	—	45·3	—	21·5	—
—	—	·9	—	—	—	—	—
22	—	149·8	—	154·1	—	197·9	—
1	—	6·6	—	3·9	—	2·1	—
10	—	28·1	—	24·6	—	21·5	—
40	—	147·9	—	76·4	—	86·0	—
—	1	—	—	1·3	1·29	—	2·15
33	—	94·6	—	50·5	—	68·8	—
—	—	—	—	—	—	—	—
—	—	·9	—	2·6	—	—	—
—	—	—	—	—	—	—	—
394	1	1253·8	3·74	1186·5	12·95	847·3	2·15

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ABSTRACT No. XXXVII.—On the Influence of Age on the Mortality.—Table showing the Death Rates of the Warrant Officers, Non-commissioned Officers and Men, at the several Ages, arranged by quinquennial Periods, in the several Foreign Commands.

Commands.	Under 20 Years.				20 and under 25.				25 and under 30.				30 and under 35.				35 and under 40.				40 and upwards.			
	Strength.	Died.	Ratio per 1,000.		Strength.	Died.	Ratio per 1,000.		Strength.	Died.	Ratio per 1,000.		Strength.	Died.	Ratio per 1,000.		Strength.	Died.	Ratio per 1,000.		Strength.	Died.	Ratio per 1,000.	
			1887.	1877-86.			1887.	1877-86.			1887.	1877-86.			1887.	1877-86.			1887.	1877-86.			1887.	1877-86.
Gibraltar	385	1	2·60	4·24	2,712	14	5·16	5·11	1,638	4	3·85	5·88	306	2	6·40	7·60	133	2	15·15	8·07	39	1	25·64	22·96
Malta	429	4	9·33	6·59	2,780	22	7·91	9·63	1,836	2	1·09	8·15	294	—	—	8·24	126	3	23·81	12·01	34	1	29·41	10·56
Cyprus	46	—	—	7·07*	230	3	13·04	13·74*	150	—	—	11·24*	25	—	—	18·35*	19	—	—	23·23*	2	—	—	—
Egypt	286	4	13·99	15·22†	3,026	45	14·87	31·93†	1,441	21	14·57	20·79†	363	7	19·28	18·71†	132	1	7·57	21·87†	24	2	83·33	42·37†
Canada	130	—	—	1·86	558	3	5·38	3·35	433	1	2·31	3·93	90	—	—	7·09	53	2	38·46	13·51	19	—	—	17·58
Bermuda	206	1	4·85	1·76‡	671	8	11·93	6·18‡	199	1	5·03	10·79‡	65	1	15·38	8·57‡	29	—	—	10·09‡	13	—	—	38·91‡
West Indies	89	—	—	11·95	677	9	13·29	16·40	236	2	8·47	15·06	83	—	—	20·67	35	2	57·14	14·95	1	—	—	28·09
South Africa and St. Helena	174	3	17·24	5·20§	1,747	11	6·30	8·40§	1,124	7	6·23	8·23§	295	3	10·04	8·45§	103	2	19·42	4·39§	47	1	21·28	18·69§
Mauritius	4	—	—	—	171	2	11·70	19·64	150	5	33·33	18·11	49	1	20·41	13·95	24	—	—	8·47	2	—	—	90·91
Ceylon	38	1	26·32	3·31	673	7	10·40	10·61	260	8	30·77‡	11·29	73	—	—	13·74	23	—	—	23·93	10	—	—	31·06
China and Straits Settlements.	74	—	—	3·65	1,253	7	5·59	6·90	630	6	9·52	8·26	206	—	—	9·35	81	—	—	13·94	23	—	—	23·41
India	3,332	27	8·10	8·84	29,166	430	14·74	16·33	18,774	284	15·13	14·46	7,209	96	13·32	13·61	3,161	55	17·40	19·86	963	10	10·50	35·63

* For eight years only (1879 to 1886). † For four years only (1883 to 1886). ‡ For nine years only (1878 to 1886).
§ For five years only (1882 to 1886).

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ABSTRACT No. XXXVIII.—TABLE showing the various CORPS which served in the UNITED KINGDOM during the Year 1887, and some of the most important of their HEALTH STATISTICS.

Brigade or Battalion.	Corps.	Average Annual Strength.	Admitted into Hospital.	Died.	Invalided.	Average Constantly Sick.	Ratio per 1,000 of Mean Strength.				Sick Time to each Soldier.	Average Duration of each Case of Sickness.	Stations occupied during the Year, &c.	Years at Home since last return from Foreign Service.
							Admitted.	Died.	Invalided.	Average Constantly Sick.				
											days.	days.		
	HOUSEHOLD CAVALRY.													
1st	Life Guards	410	218	1	6	8·78	531·7	2·44	14·63	21·41	7·82	14·70	Windsor, 3 months; London, 9 months	71
2nd	Life Guards	407	295	4	5	16·37	724·8	9·83	12·28	40·22	14·68	20·25	London, 12 months	71
	Royal Horse Guards	375	195	—	5	10·13	520·0	—	13·33	27·01	9·86	18·96	London, 3 months; Windsor, 9 months	71
	Household Cavalry detached	54	8	—	—	·24	148·1	—	—	4·44	16·22	109·50	Detachments at Aldershot, Chatham, and Hythe.	
	Total Household Cavalry	1,346	716	5	16	35·52	574·6	4·01	12·84	28·51	10·40	18·11		
	CAVALRY.													
4th	Dragoon Guards	463	324	4	6	26·63	699·8	8·64	12·97	57·52	20·99	29·99	Dublin, 12 months	5
5th	Dragoon Guards	564	341	1	6	18·90	604·6	1·79	10·64	33·51	12·23	20·23	Dundalk, 12 months; Detachment at Belfast.	31
1st	Royal Dragoons	530	530	1	9	33·30	1000·0	1·88	16·98	62·83	22·93	23·93	Aldershot, 12 months	31
2nd	Royal Dragoons	471	402	3	10	19·10	853·5	6·37	21·23	40·55	14·80	17·34	Aldershot, 7 months; Brighton, 5 months; Detachment at Hilsea.	31
3rd	Hussars	447	371	1	6	16·18	829·9	2·24	13·42	36·19	13·21	15·92	Manchester, 5 months; Cahir, 7 months; Detachments at Liverpool and Limerick.	8
4th	Hussars	402	293	—	6	17·39	728·8	—	14·92	43·26	15·79	21·66	Piersbill, 4½ months; Ballincollig, 7½ months.	9

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Brigade or Battalion.	Corps.	Average Annual Strength.	Admitted into Hospital.	Died.	Invalided.	Constantly Sick.	Ratio per 1,000 of Mean Strength.				Sick Time to each Soldier.	Average Duration of each Case of Sickness.	Stations occupied during the Year, &c.	Years at Home since last return from Foreign Service.
							Admitted.	Died.	Invalided.	Average Constantly Sick.				
	CAVALRY—*cont.*										days.	days.		
5th	Lancers	568	458	1	9	28·37	806·3	1·76	15·84	49·95	18·23	22·61	Brighton, 3½ months; Aldershot, 8½ months; Detachment at Hilsea.	13
9th	Lancers	477	369	1	7	16·11	773·5	2·09	14·67	33·77	12·32	15·93	York, 12 months	2
10th	Hussars	486	404	3	8	21·44	831·2	6·17	16·46	44·11	16·10	19·37	Aldershot, 3 months; Hounslow, 9 months.	3
11th	Hussars	528	335	2	2	18·83	634·4	3·79	3·79	35·66	13·02	20·51	Newbridge, 12 months; Detachment at Curragh.	10
12th	Lancers	60	29	—	—	1·08	483·3	—	—	18·00	6·57	13·59	Colchester, 2 months.	—
13th	Hussars	465	475	6	6	24·48	1021·5	12·90	12·90	52·64	19·21	18·81	Colchester, 5 months; Manchester, 7 months; Detachment at Liverpool.	2
14th	Hussars	462	278	4	5	22·12	601·7	8·65	10·82	47·88	17·47	29·04	Shorncliffe, 12 months; Detachment at Aldershot.	1
15th	Hussars	451	397	—	11	21·11	880·2	—	24·39	46·80	17·08	19·41	Leeds, 4 months; Edinburgh, 8 months.	6
16th	Lancers	522	503	3	3	31·67	963·6	5·74	5·74	60·67	22·14	22·98	Dublin, 12 months; Detachment at Navan.	11
18th	Hussars	633	458	1	8	26·25	723·5	1·57	12·63	41·46	15·13	20·92	Cahir, 5 months; Aldershot, 7 months; Detachments at Limerick and Waterford.	12
19th	Hussars	451	490	—	8	19·35	1066·5	—	17·73	42·90	15·66	14·41	Norwich, 12 months; Detachments at Colchester and Birmingham.	1
20th	Hussars	132	137	2	2	10·07	1037·9	15·15	15·15	76·29	27·84	26·82	Woolwich, 2 months; Detachments at Aldershot and Shorncliffe.	—
21st	Hussars	464	432	2	14	27·11	931·0	4·31	30·17	58·42	21·32	23·90	Ballincollig, 4½ months; Aldershot, 2 months; Colchester, 4 months; Detachments at Cork and Bandon.	14
	Cavalry Depôts	1,735	1,382	8	34	86·20	796·5	4·61	19·59	49·68	18·13	22·76	Canterbury and Shorncliffe	Since formation.
	Other Corps	167	50	2	4	7·81	299·4	11·97	23·95	46·76	17·07	57·01	Aldershot, Woolwich, Dublin, &c.	
	Total Cavalry of the Line	10,478	8,458	45	164	493·50	807·2	4·29	15·65	47·10	17·19	21·30		

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Brigade or Battalion.	Corps.	Average Annual Strength.	Admitted into Hospital.	Died.	Invalided.	Constantly Sick.	Ratio per 1,000 of Mean Strength.				Sick Time to each Soldier.	Average Duration of each Case of Sickness.	Stations occupied during the Year, &c.	Years at Home since last return from Foreign Service.
							Admitted.	Died.	Invalided.	Average Constantly Sick.	Average			
											days.	days.		
	ROYAL ARTILLERY.													
A.	Horse Artillery - - -	1,048	672	5	15	48·56	641·3	4·77	14·31	46·33	16·91	26·37	A. Battery, Woolwich; B., Aldershot; C., Aldershot; H., Aldershot; I., Dublin; K., Exeter and Dorchester; M., Newbridge; Depôt, Woolwich.	
B.	Horse Artillery - -	660	581	4	21	43·04	880·3	6·06	31·82	65·21	23·80	27·04	A. Battery, Dublin; B., St. John's Wood; C., Dorchester; D., Woolwich; E., Exeter; F., Woolwich; Depôt, Woolwich.	
1st	Field Artillery - - - -	2,019	1,656	8	29	97·21	820·2	3·96	14·36	48·14	17·57	21·42	C. Battery, Canterbury and Shorncliffe; H., Aldershot and Dublin; I., Shorncliffe and Weedon; J., Fermoy and Woolwich; K., Woolwich; L., Shorncliffe and Ipswich; M., Woolwich and Ipswich; N., Newbridge; O., Athlone and Newbridge; V., Aldershot; W., Aldershot; Depôt, Newcastle-on-Tyne.	
2nd	Field Artillery - - - -	1,741	1,430	7	46	90·96	821·3	4·02	26·42	52·24	19·07	23·21	A. Battery, Aldershot; B., Sheffield; C., Woolwich; H., Sheffield; I., Woolwich; K., Woolwich and Coventry; L., Curragh and Woolwich; N., Weedon and Woolwich; O., Coventry and Aldershot; P., Kilkenny; Q., Bristol and Athlone; S., Ipswich and Shorncliffe; T., Exeter; Depôt, Colchester.	
3rd	Field Artillery - - - -	1,571	1,445	5	25	96·45	919·8	3·18	15·91	61·39	22·41	24·36	A. Battery, Trowbridge and Bristol; B., Ipswich and Shorncliffe; C., Weedon and Aldershot; D., Aldershot; E., Woolwich; F., Chatham and Woolwich; H., Exeter; J., Dublin and Fermoy; S., Aldershot; T., Dorchester and Weedon; Depôt, Hilsea.	

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Brigade or Battalion.	Corps.	Average Annual Strength.	Admitted into Hospital.	Died.	Invalided.	Average Constantly Sick.	Ratio per 1,000 of Mean Strength.				Sick Time to each Soldier.	Average Duration of each Case of Sickness.	Stations occupied during the Year, &c.	Years at Home since last return from Foreign Service.
							Admitted.	Died.	Invalided.	Average Constantly Sick.				
	ROYAL ARTILLERY—*cont.*										days.	days.		
4th	Field Artillery - - - -	1,220	1,312	9	30	75·91	1075·4	7·37	24·59	62·22	22·71	21·12	A. Battery, Woolwich and Okehampton; B., Limerick; C., Newport and Weedon; E., Christchurch; F., Sheffield; G., Clonmel; J., Christchurch; S., Glasgow; Depôt, Preston.	
	Garrison Artillery, Northern Division.	308	245	1	5	13·77	795·4	3·24	16·23	44·70	16·31	20·51	No. 5 Battery, Devonport; No. 6, Devonport; No. 10, Portsmouth; Depôt, Sunderland.	
	Garrison Artillery, Lancashire Division.	657	431	4	10	28·25	659·0	6·09	15·22	43·00	15·69	23·92	No. 6 Battery, Shoeburyness; No. 7, Cork; No. 8, Dover; No. 9, Jersey; No. 10, Gosport; Depôt, Liverpool.	
	Garrison Artillery, Eastern Division	429	386	2	7	15·99	899·7	4·66	16·31	37·27	13·60	15·12	No. 4 Battery, Isle of Wight; No. 8, Sheerness; No. 10, Isle of Wight; Depôt, Colchester and Yarmouth.	
	Garrison Artillery, Cinque Ports Division.	452	336	4	8	18·74	743·3	8·85	17·70	41·46	15·13	20·35	No. 3 Battery, Devonport; No. 4, Pembroke; No. 5, Chatham; No. 10, Gosport; Depôt, Dover.	
	Garrison Artillery, London Division	945	745	8	13	44·24	788·3	8·46	13·75	46·81	17·08	21·67	No. 2 Battery, Woolwich; No. 3, Portsmouth; No. 4, Dover; No. 5, Dover; No. 7, Isle of Wight, Chatham, and Sheerness; No. 9, Weymouth; No. 10, Woolwich; Depôt, Woolwich.	
	Garrison Artillery, Southern Division.	387	248	2	5	11·97	640·8	5·16	12·92	30·93	11·29	17·61	No. 4 Battery, Shoeburyness; No. 10, Portsmouth; Depôt, Gosport.	
	Garrison Artillery, Western Division	261	264	4	5	14·01	1011·5	15·32	19·15	53·64	19·57	19·35	No. 6 Battery, Devonport, Pembroke, and Lydd; No. 10, Woolwich; Depôt, Devonport.	
	Garrison Artillery, Scottish Division	760	527	7	12	33·41	693·4	9·21	15·79	43·96	16·04	23·14	No. 4 Battery, Landguard Fort; No. 5, Woolwich; No. 6, Gosport and Portsmouth; No. 7, Port Camden; No. 8, Guernsey and Alderney; No. 9, Gosport, Isle of Wight, and Lydd; No. 10 Dover; Depôt, Leith Fort.	

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							Admitted.	Died.	Invalided.	Average Constantly Sick.				
	ROYAL ARTILLERY—*cont.*										days.	days.		
	Garrison Artillery, Welsh Division	792	469	3	13	29·20	617·4	3·78	16·41	36·87	13·45	21·79	No. 1 Battery, Portsmouth; No. 2, Portsmouth; No. 6, Pembroke Dock; No. 7, Devonport; No. 8, Devonport; No. 9, Lydd, Dover, and Fort Carlisle; Depôt, Newport.	
	Royal Artillery, North Irish Division.	725	683	8	15	35·78	942·0	11·03	20·69	49·35	18·01	19·12	No. 3 Battery, Spike Island; No. 6, Sheerness; No. 7, Isle of Wight; No. 8, Portsmouth; No. 9, Devonport; Depôt, Londonderry.	
	Royal Artillery, South Irish Division.	481	405	2	7	19·49	842·0	4·15	14·55	40·52	14·79	17·65	No. 2 Battery, Aldershot; No. 4, Woolwich; No. 5, Portsmouth; Guernsey and Alderney; No. 6, Chatham and Sheerness; Depôt, Kinsale.	
	Royal Artillery, Regimental District: Staff.	906	303	7	24	25·49	334·4	7·72	26·49	28·13	10·27	30·70	Woolwich.	
	Royal Artillery, Coast Brigade	496	103	8	4	6·44	207·6	16·13	8·06	12·98	4·74	22·82	1st Division, Tynemouth; 3rd, Portsmouth; 4th, Devonport; 5th, Edinburgh; 6th, Tower of London; 7th, Guernsey, Alderney, and Jersey; 8th, Londonderry, Enniskillen, and Dublin; 9th, Cork; 10th, Gravesend and Sheerness.	
	Royal Artillery, Various Brigades	838	383	6	22	32·66	462·5	7·24	26·57	39·44	14·39	31·13		
	Total Royal Artillery	16,686	12,644	104	317	781·57	757·7	6·23	19·00	46·84	17·09	23·56		
	ROYAL ENGINEERS.													
	Royal Engineers	3,768	2,243	23	39	126·93	595·3	6·10	10·35	33·69	12·29	20·65		Various.

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							Admitted.	Died.	Invalided.	Average Constantly Sick.				
	FOOT GUARDS.										days.	days.		
1st	Grenadier Guards	751	685	8	9	52·57	912·1	10·65	11·98	70·00	25·55	28·01	London, 12 months	23
2nd	Grenadier Guards	724	711	7	6	55·01	982·0	9·66	8·28	75·98	27·73	28·24	London, 4 months; Dublin, 6 months; Curragh, 2 months.	5
3rd	Grenadier Guards	709	705	3	14	49·91	994·4	4·23	19·75	70·39	25·69	25·84	London, 12 months	2
1st	Coldstream Guards	707	556	3	19	37·75	786·4	4·24	26·87	53·39	19·57	24·89	Windsor, 8 months; London, 4 months	2
2nd	Coldstream Guards	701	702	2	12	46·38	1001·4	2·85	17·12	66·16	24·15	24·11	London, 8 months; Dublin, 4 months	5
1st	Scots Guards	679	715	6	22	39·49	1053·0	8·83	32·40	58·16	21·22	20·16	London, 4 months; Windsor, 8 months	5
2nd	Scots Guards	603	661	5	8	40·50	1096·2	8·29	13·27	67·16	24·51	22·36	London, 12 months	2
	Detachments Foot Guards	387	178	—	2	13·70	459·9	—	5·16	35·45	12·92	28·09	Aldershot, Curragh, Chatham, and Hythe.	Various
	Total Foot Guards	5,261	4,913	34	92	335·31	933·8	6·46	17·49	63·73	23·26	24·91		
	INFANTRY.													
2nd	Royal Scots	666	477	2	10	22·75	717·3	3·01	15·04	34·21	12·49	17·41	Maryhill, 12 months	7
1st	Royal West Surrey Regiment	603	676	1	10	41·78	1121·1	1·66	16·58	69·28	25·29	22·55	Belfast, 12 months	8
2nd	East Kent Regiment	736	471	4	8	27·04	639·9	5·43	10·87	36·74	13·41	20·95	Dover, 12 months	1
1st	Royal Lancaster Regiment	667	246	5	10	11·24	369·0	7·50	14·99	16·85	6·15	16·68	Buttevant, 12 months	6
1st	Northumberland Fusiliers	562	503	2	16	27·14	895·0	3·55	28·47	48·29	17·62	19·69	Newry and Belfast, 6 months; Colchester, 6 months; Detachment at Aldershot.	7

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						Average	Admitted.	Died.	Invalided.	Average Constantly Sick.	Average Time to each Soldier.			
	INFANTRY—*cont.*										days.	days.		
1st	Royal Warwickshire Regiment -	762	500	3	15	25·71	656·2	3·94	19·69	33·74	12·32	18·77	Tipperary, 9 months; Fermoy, 3 months.	7
1st	Liverpool Regiment - - -	535	510	—	13	27·71	953·3	—	24·30	51·79	18·91	19·83	Dublin, 12 months - - -	9
1st	Norfolk Regiment - - -	850	964	2	16	61·56	1134·1	2·35	18·82	72·42	26·43	23·31	Aldershot, 12 months - - -	1
1st	Lincolnshire Regiment - -	651	820	7	8	53·05	1259·6	10·75	12·29	81·49	29·74	23·61	Dublin, 12 months - - -	10
1st	Devonshire Regiment - -	631	578	3	11	30·66	930·7	4·83	17·71	49·37	18·02	19·36	Cork, 11½ months; Aldershot, ½ month	10
2nd	Suffolk Regiment - - -	768	553	3	3	34·40	720·1	3·91	3·91	44·79	16·34	22·71	Curragh, 12 months - - -	10
1st	Somerset Light Infantry - -	708	706	4	33	45·60	997·2	5·65	46·61	64·41	23·51	23·57	Colchester, 12 months - - -	8
1st	West Yorkshire Regiment - -	463	533	6	8	31·32	1151·2	12·96	17·28	67·65	24·70	21·46	Dublin, 12 months; Detachment at the Curragh.	8
1st	Bedfordshire Regiment - -	706	611	4	5	30·65	865·4	5·66	7·08	43·41	15·84	18·31	Bradford, 6 months; Enniskillin, Belturbet, and Londonderry, 6 months.	17
1st	Leicestershire Regiment - -	790	526	1	13	27·37	665·8	1·26	16·45	34·64	12·64	18·79	York, 12 months - - - -	5
1st	Royal Irish Regiment - -	798	761	2	20	49·32	952·4	2·51	25·06	61·80	22·56	23·65	Devonport, 12 months - - -	2
2nd	Yorkshire Regiment - - -	613	531	3	8	33·41	866·2	4·89	13·05	54·50	19·89	22·96	Aldershot, 12 months - - -	11
1st	Lancashire Fusiliers - - -	619	842	4	13	42·25	1360·2	6·46	21·00	68·25	24·91	18·31	Manchester, 12 months - - -	7
1st	Royal Scots Fusiliers - - -	691	371	2	8	15·43	536·9	2·89	11·58	22·33	8·15	15·18	Fermoy, 9 months; Birr, 3 months; Detachments at Portumna and Loughrea.	6
2nd	Royal Welsh Fusiliers - -	617	371	1	4	15·91	601·3	1·62	6·48	25·78	9·41	15·65	Fermoy, 8 months; Galway, 4 months; Detachments at Castlebar, Oughterard, and Gort.	7

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							Admitted.	Died.	Invalided.	Average Constantly Sick.				
	INFANTRY—*cont.*										days.	days.		
1st	South Wales Borderers	639	487	5	6	24·87	774·2	7·95	9·54	39·54	14·43	18·64	Birr, 9 months; Dublin, 3 months; Detachments, Portumna and Loughrea.	8
2nd	King's Own Scottish Borderers	753	566	2	14	38·73	751·7	2·66	18·58	51·43	18·77	24·99	Aldershot, 12 months	1
1st	Scottish Rifles	682	484	1	9	24·15	709·7	1·46	13·19	35·41	12·92	18·21	Curragh, 11½ months; Cork, ½ month	6
2nd	Royal Inniskilling Fusiliers	814	754	4	9	56·30	926·3	4·91	11·06	69·16	25·24	27·25	Aldershot, 12 months	1
1st	Gloucestershire Regiment	876	708	2	4	30·08	808·2	2·27	4·56	34·33	12·64	15·50	Preston, 12 months	8
2nd	Worcestershire Regiment	830	1,091	11	13	59·92	1314·4	13·25	15·66	72·19	26·35	20·04	Portsmouth, 7 months; Pembroke Dock, 5 months.	12
2nd	East Lancashire Regiment	508	392	2	1	16·54	771·6	3·94	1·97	32·55	11·68	15·40	Newry, 6 months; Enniskillin, 6 months; Detachments at Belfast and Londonderry.	7
2nd	East Surrey Regiment	615	364	2	5	20·56	591·9	3·25	8·13	33·43	12·20	20·62	Dover, 12 months	2
2nd	Duke of Cornwall's Light Infantry	664	666	—	16	42·89	1009·0	—	24·10	64·59	23·58	23·51	Devonport, 12 months	1
2nd	Border Regiment	613	436	1	9	21·69	711·2	1·63	14·68	35·38	12·91	18·16	Galway, 8 months; Guernsey and Alderney, 4 months; Detachments at Castlebar, Gort, and Oughterard.	10
1st	Royal Sussex Regiment	775	610	1	9	39·43	787·1	1·29	11·61	50·88	18·57	23·59	Aldershot, 12 months	2
2nd	South Staffordshire Regiment	648	817	5	22	49·30	1260·8	7·72	33·95	76·08	27·77	22·03	Devonport, 12 months	7
1st	Dorsetshire Regiment	844	508	4	4	31·20	601·9	4·74	4·74	36·97	13·49	22·41	Portland, 12 months	1
2nd	Dorsetshire Regiment	649	735	4	12	36·29	1133·5	6·16	18·48	55·92	20·41	18·02	Portsmouth, 12 months	1
1st	South Lancashire Regiment	569	824	4	19	46·29	1448·1	7·03	33·38	81·35	29·69	20·51	Portsmouth, 12 months	1

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						Average	Admitted.	Died.	Invalided.	Average Constantly Sick.				
	INFANTRY—*cont.*										days.	days.		
2nd	Welsh Regiment	568	719	1	16	43·48	1265·9	1·76	28·17	76·55	27·94	22·07	Dublin, 9 months; Tipperary, 3 months	9
2nd	Royal Highlanders	603	488	5	5	31·98	809·3	8·29	8·29	53·03	19·36	23·92	Dublin, 12 months	6
1st	Oxfordshire Light Infantry	631	357	5	11	29·39	565·8	7·92	17·43	46·57	17·00	30·05	Shorncliffe, 10½ months.	—
1st	Essex Regiment	706	677	3	16	37·50	958·9	4·25	22·66	53·11	19·38	20·21	Colchester, 6 months; Bradford, 6 months.	3
1st	Derbyshire Regiment	766	457	6	1	16·89	596·6	7·83	1·31	22·05	8·05	13·49	Kilkenny, 12 months	9
2nd	Loyal North Lancashire Regiment	653	563	1	8	28·92	860·6	1·53	12·25	44·27	16·16	18·78	Pembroke Dock, 7 months; Jersey, 5 months.	4
1st	Northamptonshire Regiment	692	775	6	13	42·69	1119·9	8·67	18·79	61·69	22·52	20·11	Aldershot, 12 months	7
2nd	Royal Berkshire Regiment	706	364	5	6	17·35	514·1	7·06	8·47	24·50	8·96	17·44	Athlone, 7 months; Templemore, 5 months; Detachments at Longford and Boyle.	6
2nd	Royal West Kent Regiment	570	631	2	6	33·18	1107·0	3·51	10·53	56·45	20·60	18·61	Chatham, 12 months	5
1st	Yorkshire Light Infantry	82	92	—	—	2·26	1121·9	—	—	27·56	10·06	8·97	Gosport, ½ month.	—
2nd	Shropshire Light Infantry	753	375	2	13	20·08	498·0	2·66	17·26	26·53	9·73	19·54	Curragh, 12 months	6
1st	Middlesex Regiment	756	699	2	7	42·36	924·6	2·64	9·26	56·03	20·45	22·12	Aldershot, 12 months	8
1st	King's Royal Rifle Corps	789	453	2	2	29·35	574·1	2·53	2·53	37·19	13·58	23·65	Parkhurst, 12 months; Detachment at Aldershot.	11
2nd	King's Royal Rifle Corps	749	331	—	14	29·22	428·5	—	18·69	39·01	14·24	33·22	Shorncliffe, 12 months; Detachment at Aldershot.	6
1st	Wiltshire Regiment	636	384	3	5	19·19	603·7	4·71	7·86	30·17	11·01	18·24	Jersey, 7½ months; Athlone, 4½ months; Detachments at Longford and Birr.	5

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							Admitted.	Died.	Invalided.	Average Constantly Sick.				
	INFANTRY—*cont.*										days.	days.		
1st	Manchester Regiment -	640	1146	6	15	63·45	1790·6	9·37	23·44	99·14	36·18	20·20	Aldershot, 12 months - - -	5
1st	York and Lancaster Regiment -	561	587	2	15	33·41	1046·3	3·56	26·73	59·55	21·73	20·77	Sheffield, 12 months - - -	3
1st	Durham Light Infantry - -	478	530	5	10	23·66	1108·8	10·46	20·92	59·96	21·88	19·74	Colchester, 9 months.	—
1st	Highland Light Infantry - -	672	436	5	6	23·09	648·8	7·44	8·93	41·80	15·25	23·15	Belfast and Downpatrick, 8 months; Curragh, 4 months.	7
1st	Seaforth Highlanders - -	679	537	7	8	23·19	790·9	10·31	11·78	41·52	15·15	19·16	Edinburgh, 12 months; Detachment at Blackness Castle.	5
2nd	Gordon Highlanders - - -	672	477	5	4	23·43	709·8	7·44	5·95	34·86	12·72	17·92	Guernsey and Alderney, 8 months; Belfast and Downpatrick, 4 months.	6
1st	Queen's Own Cameron Highlanders	627	708	—	4	42·79	1129·2	—	6·38	68·24	24·91	22·06	Devonport, 9 months; Detachment at Aldershot.	—
1st	Royal Irish Rifles - - -	711	579	7	8	33·62	814·3	9·84	11·25	47·28	17·26	21·19	Gosport, 11½ months; Mullingar, ½ month; Detachments at Aldershot and Sligo.	6
2nd	Royal Irish Fusiliers - - -	725	592	3	17	40·16	816·5	4·14	23·45	55·39	20·22	24·76	Aldershot, 12 months - - -	3
2nd	Connaught Rangers - - -	660	618	1	8	27·91	936·3	1·51	12·12	42·29	15·43	16·48	Templemore, 7 months; Portsmouth, 5 months; Detachment at Buttevant.	5
2nd	Argyll and Sutherland Highlanders	639	623	2	20	33·61	975·0	3·13	31·30	52·60	19·20	19·69	Cork, 12 months; Detachment at Youghal.	6
2nd	Leinster Regiment - - -	722	558	4	6	29·99	772·9	5·54	8·31	41·54	15·16	19·63	Limerick, 12 months; Detachments at Clare Castle and Tralee.	10
1st	Royal Munster Fusiliers - -	659	485	6	6	26·18	736·0	9·10	9·10	39·27	14·50	19·70	Dover, 12 months - - -	4
1st	Royal Dublin Fusiliers - -	590	500	2	10	26·78	847·4	3·39	16·95	45·39	16·57	19·55	Mullingar, 11½ months; Curragh, ½ month; Detachments at Dublin, Sligo, and Tullamore.	1

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						Average	Admitted.	Died.	Invalided.	Average Constantly Sick.	Average	Average		
	INFANTRY—*cont.*										days.	days.		
2nd	Rifle Brigade	764	556	2	14	41·68	727·7	2·61	18·32	54·55	19·91	27·36	Woolwich, 12 months	7
3rd	Rifle Brigade	723	451	1	3	21·04	623·8	1·38	4·15	29·10	10·62	17·03	Warley, 7½ months; London, 2 months; Detachment at Purfleet.	1
	Other Infantry	1,348	661	—	23	65·38	539·6	—	18·43	53·39	19·13	36·10		Various
	Total	45,227	33,390	208	634	2209·75	847·0	4·59	15·09	48·75	17·79	21·01		
	REGIMENTAL DEPÔTS.													
Depôt.	Royal Scots Regiment	165	53	1	2	3·89	321·2	6·06	12·12	23·58	8·61	26·79	Glencorse	Since formation.
„	Royal West Surrey Regiment	138	123	—	3	4·03	891·3	—	21·74	29·16	10·66	11·96	Guildford	„
„	East Kent Regiment	110	93	1	—	5·84	836·4	9·09	—	53·09	19·38	23·17	Canterbury	„
„	Royal Lancaster Regiment	128	87	1	1	3·21	679·7	7·81	7·81	25·07	9·15	13·46	Lancaster	„
„	Northumberland Fusiliers	145	108	—	5	3·75	744·8	—	34·48	25·86	9·44	12·67	Newcastle-on-Tyne	„
„	Royal Warwickshire Regiment	103	53	1	3	1·94	514·5	9·71	29·12	18·83	6·87	13·36	Warwick	„
„	Royal Fusiliers	509	543	1	8	24·95	1066·8	1·96	15·71	49·02	17·89	16·77	Hounslow	„
„	Liverpool Regiment	135	53	2	1	2·09	392·5	14·81	7·40	15·48	5·65	14·39	Warrington	„
„	Norfolk Regiment	96	93	—	4	5·66	968·7	—	41·67	58·96	21·52	22·21	Yarmouth	„
„	Lincolnshire Regiment	138	72	—	1	3·90	521·7	—	7·25	28·26	10·31	19·77	Lincoln	„

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							Admitted.	Died.	Invalided	Average Constantly Sick.				
	REGIMENTAL DEPÔTS—*cont.*										days.	days.		
Depôt.	Devonshire Regiment - -	125	125	2	2	4·67	1000·0	16·00	16·00	37·36	13·64	13·64	Exeter - - - - -	Since formation.
„	Suffolk Regiment - - -	94	63	1	1	2·16	670·2	10·64	10·64	22·98	8·39	12·51	Bury St. Edmunds - - -	„
„	Somersetshire Light Infantry -	117	60	2	1	1·63	512·8	17·09	8·54	13·93	5·08	9·91	Taunton - - - - -	„
„	West Yorkshire Regiment - -	183	169	1	8	7·80	923·5	5·49	43·96	42·95	15·64	16·84	York - - - - -	„
„	East Yorkshire Regiment - -	607	421	5	4	18·93	693·5	8·24	6·59	31·18	11·38	16·41	Beverley - - - - -	„
„	Bedfordshire Regiment - -	123	134	—	2	4·42	1089·4	—	16·26	35·96	13·12	12·04	Bedford - - - - -	„
„	Leicestershire Regiment - -	121	81	2	2	3·09	669·4	16·53	16·53	25·53	9·33	13·92	Leicester - - - - -	„
„	Royal Irish Regiment - -	131	118	—	1	3·76	900·8	—	7·63	28·70	10·48	11·63	Clonmel - - - - -	„
„	Yorkshire Regiment - - -	117	34	—	1	1·96	290·5	—	8·54	16·92	6·18	21·15	Richmond (Yorks) - - -	„
„	Lancashire Fusiliers - - -	169	62	—	2	2·55	366·8	—	11·83	15·09	5·51	15·01	Bury (Lanc.) - - - -	„
„	Royal Scots Fusiliers - - -	124	70	—	1	1·90	564·5	—	8·06	15·32	5·60	9·91	Ayr - - - - -	„
„	Cheshire Regiment - - -	372	257	3	10	12·14	690·8	8·06	26·88	32·63	11·91	17·24	Chester - - - - -	„
„	Royal Welsh Fusiliers - -	148	116	2	1	5·94	783·7	13·51	6·75	40·13	14·65	18·69	Wrexham - - - - -	„
„	South Wales Borderers - -	139	141	1	—	3·77	1014·4	7·19	—	27·12	9·90	9·76	Brecon - - - - -	„
„	King's Own Scottish Borderers -	119	98	—	4	3·35	823·5	—	33·61	28·15	10·27	12·47	Berwick-on-Tweed - - -	„
„	Scottish Rifles - - - - -	123	55	4	2	1·89	450·8	32·78	16·39	15·49	5·66	12·56	Hamilton - - - - -	„

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Brigade or Battalion.	Corps.	Average Annual Strength.	Admitted into Hospital.	Died.	Invalided.	Average Constantly Sick.	Ratio per 1,000 of Mean Strength. Admitted.	Died.	Invalided.	Average Constantly Sick.	Sick Time to each Soldier.	Average Duration of each Case of Sickness.	Stations occupied during the Year, &c.	Years at Home since last return from Foreign Service.
	REGIMENTAL DEPOTS—*cont.*										days.	days.		
Depôt	Royal Inniskilling Fusiliers	135	45	—	4	1·38	333·3	—	29·63	10·22	3·72	11·19	Omagh	Since formation.
„	Gloucestershire Regiment	137	63	2	—	3·14	459·8	14·59	—	22·92	8·37	18·19	Bristol	„
„	Worcestershire Regiment	163	93	—	1	3·07	570·5	—	6·13	18·83	6·87	12·05	Worcester	„
„	East Lancashire Regiment	123	94	—	5	5·13	764·2	—	40·65	41·62	15·19	19·88	Burnley	„
„	East Surrey Regiment	163	88	1	—	4·00	539·9	6·13	—	24·54	8·95	16·59	Kingston	„
„	Duke of Cornwall's Light Infantry	100	79	1	—	1·79	790·0	10·00	—	17·90	6·53	8·27	Bodmin	„
„	West Riding Regiment	314	349	4	3	13·70	1111·4	12·74	9·55	43·63	15·92	14·32	Halifax	„
„	Border Regiment	122	93	—	1	3·48	762·2	—	8·19	28·52	10·41	13·66	Carlisle	„
„	Royal Sussex Regiment	147	98	2	2	3·02	666·6	13·61	13·61	20·54	7·50	11·25	Chichester	„
„	Hampshire Regiment	745	534	4	5	26·48	716·8	5·37	6·71	35·54	12·97	18·10	Winchester	„
„	South Staffordshire Regiment	175	68	—	1	2·35	388·5	—	5·71	13·42	4·86	12·52	Lichfield	„
„	Dorsetshire Regiment	147	98	—	—	3·95	666·6	—	—	26·87	9·81	14·71	Dorchester	„
„	South Lancashire Regiment	115	41	—	—	1·34	356·5	—	—	11·65	4·25	11·93	Warrington	„
„	Welsh Regiment	122	114	—	2	4·38	934·4	—	16·39	35·90	13·10	14·02	Cardiff	„
„	Royal Highlanders	185	116	—	4	3·73	627·0	—	21·62	20·16	7·36	11·74	Perth	„
„	Oxfordshire Light Infantry	182	192	2	7	7·90	1054·9	10·99	38·46	43·40	15·84	15·02	Oxford	„
„	Essex Regiment	152	118	—	1	4·40	893·9	—	7·56	33·33	12·16	13·63	Warley	„

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Brigade or Battalion.	Corps.	Average Annual Strength.	Admitted into Hospital.	Died.	Invalided.	Average Constantly Sick.	Ratio per 1,000 of Mean Strength.				Sick to each Soldier.	Average Duration of each Case of Sickness.	Stations occupied during the Year, &c.	Years at Home since last return from Foreign Service.
							Admitted.	Died.	Invalided.	Average Constantly Sick.	Average Time to each Soldier.			
	REGIMENTAL DEPÔTS—*cont.*										days.	days.		
Depôt	Derbyshire Regiment	113	49	1	1	2·72	433·6	8·84	8·84	24·07	8·78	20·26	Derby	Since formation.
„	Loyal North Lancashire Regiment	93	47	2	—	1·80	505·3	21·50	—	19·35	7·06	13·98	Preston	„
„	Northamptonshire Regiment	140	94	1	1	2·61	671·4	7·14	7·14	18·64	6·80	10·13	Northampton	„
„	Royal Berkshire Regiment	114	102	1	1	3·91	894·7	8·77	8·77	34·29	12·52	13·99	Reading	„
„	Royal West Kent Regiment	181	144	—	2	7·16	795·6	—	11·05	39·56	14·44	18·15	Maidstone	„
„	Yorkshire Light Infantry	457	459	2	6	18·81	1002·1	4·37	13·12	41·16	15·02	15·00	Pontefract	„
„	Shropshire Light Infantry	198	157	3	3	5·46	796·4	15·15	15·15	27·57	10·06	12·69	Shrewsbury	„
„	Middlesex Regiment	76	68	—	1	3·13	894·7	—	13·15	41·18	15·03	16·80	Hounslow	„
„	Wiltshire Regiment	136	125	—	1	4·75	919·1	—	7·35	34·92	12·75	13·87	Devizes	„
„	Manchester Regiment	101	122	—	2	4·77	1207·9	—	19·80	47·22	17·23	14·27	Ashton-under-Lyne	„
„	North Staffordshire Regiment	402	290	3	5	11·59	721·3	7·46	12·43	28·83	10·52	14·58	Lichfield	„
„	York and Lancaster Regiment	132	101	1	2	4·70	765·1	7·57	15·15	35·45	12·99	16·98	Pontefract	„
„	Durham Light Infantry	325	200	2	4	8·14	615·3	6·15	12·30	25·04	9·14	14·85	Newcastle-on-Tyne	„
„	Highland Light Infantry	145	65	1	3	2·10	448·3	6·90	20·69	14·48	5·29	11·80	Hamilton	„
„	Seaforth Highlanders	108	66	—	—	3·05	611·1	—	—	28·24	10·29	16·83	Fort George	„
„	Gordon Highlanders	171	117	2	1	4·10	684·2	11·70	5·85	23·98	8·75	12·79	Aberdeen	„
„	Queen's Own Cameron Highlanders	144	99	1	2	5·39	687·5	6·94	13·89	37·43	13·67	19·88	Inverness	„

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Brigade or Battalion.	Corps.	Average Annual Strength.	Admitted into Hospital.	Died.	Invalided.	Average Constantly Sick.	Ratio per 1,000 of Mean Strength. Admitted.	Died.	Invalided.	Average Constantly Sick.	Average Time to each Soldier.	Average Duration of each Case of Sickness.	Stations occupied during the Year, &c.	Years at Home since last return from Foreign Service.
											days.	days.		
Depôt	REGIMENTAL DEPÔTS—*cont.*													
"	Royal Irish Rifles - - -	159	80	2	4	3·74	503·1	12·58	25·15	23·52	8·88	17·06	Belfast - - - -	Since formation.
"	Royal Irish Fusiliers - - -	163	29	2	5	1·83	177·9	12·27	30·67	11·22	4·09	23·03	Armagh - - - -	"
"	Connaught Rangers - - -	126	51	1	1	2·33	404·8	7·94	7·94	18·49	6·75	16·67	Galway - - - -	"
"	Argyll and Sutherland Highlanders	124	51	—	—	1·97	411·3	—	—	15·89	5·80	14·10	Stirling - - - -	"
"	King's Royal Rifle Corps and Rifle Brigade.	385	454	4	7	18·18	1179·2	10·39	18·18	47·23	17·24	14·62	Winchester - - - -	"
"	Leicester Regiment - - -	174	98	2	1	3·80	534·5	14·47	5·75	21·84	7·97	14·91	Birr - - - -	"
"	Royal Munster Fusiliers - - -	121	88	—	—	3·34	727·3	—	—	27·60	10·08	13·85	Tralee - - - -	"
"	Royal Dublin Fusiliers - - -	142	89	1	3	5·27	626·7	7·04	21·12	37·11	13·54	21·61	Nass - - - -	"
"	Detached - - -	45	15	—	1	2·62	333·3	—	22·22	58·22	21·25	63·75		
		12,159	8,819	78	166	369·74	725·3	6·41	13·65	30·41	11·10	15·30		
	Garrison Staff and Departments -	6,189	3,374	33	51	200·91	545·2	5·17	8·24	32·32	12·38	23·71		

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ABSTRACT No. XXXIX.—Table, taken from the Reports of the Principal Medical Officers, showing the various Corps which served in the different Foreign Commands during the Year 1887, and some of the most important of their Health Statistics.

Brigade or Battalion.	Corps and Commands.	Average Annual Strength.	Admitted into Hospital.	Deaths.			Invalids sent Home.	Average Number Constantly Sick.	Ratio per 1,000 of Strength.				Sick Time to each Soldier.	Average Duration of each Case of Sickness.	Stations occupied during the Year.	Completed Years of Service in Foreign Commands.
				In the Command.	Of Invalids.	Total.			Admitted.	Died.	Invalided.	Constantly Sick.				
													days.	days.		
	GIBRALTAR.															
4/1	Royal Artillery, Northern Division.	131	81	—	—	—	1	4·77	618·3	—	7·63	36·41	13·29	21·49	Gibraltar, 12 months - - -	1
2/1	Royal Artillery, Lancashire Division.	139	67	—	—	—	4	4·93	482·0	—	28·77	35·47	12·94	26·85	Gibraltar, 12 months - - -	2
3/1	Royal Artillery, Lancashire Division.	136	85	1	—	1	1	6·09	625·0	7·35	7·35	44·77	16·34	26·15	Gibraltar, 12 months - - -	1
3/1	Royal Artillery, Eastern Division.	136	71	1	—	1	2	4·64	522·1	7·35	14·70	34·11	12·46	23·85	Gibraltar, 12 months - - -	1
1/1	Royal Artillery, Cinque Ports Division.	134	48	—	—	—	—	2·14	358·2	—	—	15·97	5·83	16·27	Gibraltar, 12 months - - -	1
2/1	Royal Artillery, Western Division.	132	89	1	—	1	2	5·45	674·2	7·57	15·15	41·29	15·07	22·35	Gibraltar, 12 months - - -	1
3/1	Royal Artillery, Western Division.	129	83	—	1	1	4	5·77	643·4	7·75	31·00	44·73	16·33	25·37	Gibraltar, 12 months - - -	1
	Coast Brigade - - -	5	—	—	—	—	—	—	—	—	—	—	—	—	Gibraltar, 12 months - - -	Various
	Royal Engineers - -	310	201	3	—	3	22	13·66	648·4	9·68	70·96	44·07	16·08	24·81	Gibraltar, 12 months - - -	"
1st	Norfolk Regiment - -	7	18	—	—	—	—	·38	2571·4	—	—	54·28	19·81	7·71	Gibraltar, 4 days. From England, 27th December 1887.	—
1st	South Staffordshire Regiment	815	664	3	1	4	10	32·72	814·7	4·91	12·27	40·14	14·65	17·98	Gibraltar, 12 months - - -	1
1st	Royal West Kent Regiment -	760	523	4	2	6	10	33·00	688·2	7·89	13·16	43·42	15·85	23·03	Gibraltar, 12 months - - -	1
3rd	King's Royal Rifles - -	852	543	8	—	8	26	29·60	637·3	9·39	30·52	34·74	12·68	18·05	Gibraltar, 12 months - - -	1
2nd	Royal Irish Rifles - -	779	563	2	1	3	13	30·01	748·4	3·85	16·69	38·52	14·06	18·78	Gibraltar, 12 months - - -	1

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Brigade or Battalion.	Corps and Commands.	Average Annual Strength.	Admitted into Hospital.	Deaths.			Invalids sent Home.	Average Number Constantly Sick.	Ratio per 1,000 of Strength.				Sick Time to each Soldier.	Average Duration of each Case of Sickness.	Stations occupied during the Year.	Completed Years of Service in Foreign Commands.
				In the Command.	Of Invalids.	Total.			Admitted	Died.	Invalided.	Constantly Sick.				
	GIBRALTAR—*cont.*												days.	days.		
	Commissariat and Transport Corps.	50	26	1	—	1	1	1·35	520·0	20·00	20·00	27·00	9·86	18·95	Gibraltar - - - -	Various
	Medical Staff Corps - -	72	22	—	—	—	1	·79	305·5	—	13·88	10·97	4·00	13·11		"
	Garrison Staff and Departments.	27	7	—	—	—	1	·47	259·3	—	37·04	17·41	6·35	24·51		"
	MALTA.															
2/1	Royal Artillery, Northern Division.	136	150	4	—	4	1	13·42	1102·9	29·41	7·35	98·67	36·01	32·65	Malta, 12 months - - -	1
6/1	Royal Artillery, Cinque Ports Division.	142	77	1	—	1	—	3·34	542·2	11·11	—	23·52	8·58	15·83	Malta, 12 months - - -	2
1/1	Royal Artillery, Southern Division.	90	37	1	—	1	1	3·73	411·1	7·69	11·11	41·44	15·12	36·79	Malta, 10 months. From Egypt, 21st February 1887.	1
4/1	Royal Artillery, Western Division.	130	60	1	—	1	3	3·58	461·5	7·04	23·07	27·53	10·05	21·77	Malta, 12 months - - -	1
1/1	Royal Artillery North Irish Division.	123	94	—	—	—	1	5·45	764·2	—	8·13	44·30	16·17	21·16	Malta, 12 months - - -	2
7/1	Royal Artillery, South Irish Division.	117	102	1	—	1	—	5·56	871·8	8·54	—	47·52	17·34	19·89	Malta, 12 months - - -	5
8/1	Royal Artillery, South Irish Division.	117	116	—	—	—	2	5·46	991·4	—	17·09	46·66	17·03	17·17	Malta, 12 months - - -	5
9/1	Royal Artillery, South Irish Division.	116	89	—	—	—	1	5·47	767·2	—	8·62	47·15	17·21	22·43	Malta, 12 months - - -	5
	Royal Engineers - -	130	73	1	—	1	4	4·45	561·5	7·69	30·76	34·23	12·49	22·25	Malta, 12 months - - -	Various
1st	Duke of Cornwall's Light Infantry.	874	386	5	—	5	4	22·29	441·6	5·72	4·57	25·50	9·30	21·07	Malta, 12 months - - -	3
1st	Royal Highlanders - -	849	419	3	—	3	17	29·64	493·5	3·53	20·02	34·91	12·74	25·83	Malta, 12 months - - -	1
2nd	Essex Regiment - -	688	340	3	—	3	2	18·43	494·1	4·35	2·90	26·78	9·77	19·78	Malta, 10 months. From Egypt, 3rd March 1887.	—

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Brigade or Battalion.	Corps and Commands.	Average Annual Strength.	Admitted into Hospital.	Deaths. In the Command.	Deaths. Of Invalids.	Deaths. Total.	Invalids sent Home.	Average Number Constantly Sick.	Ratio per 1,000 of Strength. Admitted.	Died.	Invalided.	Constantly Sick.	Average Sick Time to each Soldier.	Average Duration of each Case of Sickness.	Stations occupied during the Year.	Completed Years of Service in Foreign Commands.
	MALTA—*cont.*												days.	days.		
1st	Royal Berkshire Regiment (Half Battalion).	397	152	2	1	3	3	12·12	382·8	7·55	7·55	30·52	11·14	29·10	Malta, 12 months - -	1
2nd	South Yorkshire Regiment -	122	88	1	—	1	4	5·77	721·3	8·19	32·78	47·29	17·26	23·93	Malta, 1½ months. Left for India, 18th February 1887.	3
1st	Shropshire Light Infantry -	542	315	3	1	4	7	24·27	581·1	7·38	12·91	44·77	16·34	28·12	Malta, 10 months. From Egypt, 21st February 1887.	—
1st	Gordon Highlanders - -	798	450	4	1	5	11	29·77	563·9	6·26	13·78	37·30	13·61	24·14	Malta, 12 months - - -	2
	Commissariat and Transport Corps.	13	6	—	—	—	—	·47	461·5	—	—	·36	13·19	28·59		Various
	Ordnance Store Corps - -	11	4	—	—	—	—	·26	363·6	—	—	·23	8·62	23·72		„
	Medical Staff Corps - -	93	35	—	—	—	2	2·01	376·3	—	21·50	21·61	7·88	20·96	Malta - - - - -	„
	Garrison Staff and Departments.	9	—	—	—	—	—	—	—	—	—	—	—	—		„
	Other Corps - -	2	18	2	1	3	2	2·14	—	—	—	—	—	—		„
	CYPRUS.															
1st	Royal Berkshire Regiment -	414	304	3	—	3	9	16·38	734·2	7·24	21·74	39·56	14·44	19·66	Polymedia, 7½ months; Mount Troodos, 4½ months.	1
	Garrison Staff and Departments.	58	31	—	—	—	—	1·29	534·5	—	—	22·24	8·12	15·19	Various stations - - -	Various

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Brigade or Battalion.	Corps and Commands.	Average Annual Strength.	Admitted into Hospital.	Deaths.			Invalids sent Home.	Average Number Constantly Sick.	Ratio per 1,000 of Strength.				Average Sick Time to each Soldier.	Average Duration of each Case of Sickness.	Stations occupied during the Year.	Completed Years of Service in Foreign Commands.
				In the Command.	Of Invalids.	Total.			Admitted.	Died.	Invalided.	Constantly Sick.				
													days.	days.		
	CANADA.															
5/1	Royal Artillery, Northern Division.	87	54	—	—	—	—	2·88	620·7	—	—	33·10	12·08	19·47	Halifax, 9½ months. To England, 18th October 1887.	2
6/1	Royal Artillery, Northern Division.	78	44	—	—	—	1	1·78	564·1	—	12·82	22·82	8·33	14·77	Halifax, 9½ months. To England, 18th October 1887.	2
3/1	Royal Artillery, Cinque Ports Division.	25	19	—	—	—	—	·85	760·0	—	—	34·00	12·41	16·33	Halifax, 2½ months. From England, 13th October 1887.	—
4/1	Royal Artillery, Cinque Ports Division.	26	23	—	—	—	—	·84	884·6	—	—	32·31	11·79	13·33	Halifax, 2½ months. From England, 13th October 1887.	—
5/1	Royal Artillery, Cinque Ports Division.	77	36	—	—	—	1	1·98	467·5	—	12·98	25·71	9·39	20·08	Halifax, 9½ months. To England, 18th October 1887.	3
3/1	Royal Artillery, London Division.	24	21	—	—	—	—	1·00	875·0	—	—	41·67	15·21	17·38	Halifax, 2½ months. From England, 13th October 1887.	—
	Royal Engineers - -	114	43	—	—	—	—	1·68	377·2	—	—	14·74	5·38	14·26	Halifax - - - - -	Various
2nd	York and Lancaster Regiment	806	550	5	—	5	11	33·69	682·4	6·20	13·65	41·80	15·26	22·36	Halifax, 12 months - - -	1
	Garrison Staff and Departments.	44	11	1	1	2	1	·45	250·0	45·46	22·73	10·23	3·73	14·93	Halifax - - - - -	Various
	Other Corps - - -	1	—	—	—	—	—	·44	—	—	—	—	—	—	Halifax - - - - -	"
	BERMUDA.															
2/1	Royal Artillery, North Irish Division.	109	92	1	—	1	5	4·40	844·0	9·17	45·87	40·37	14·73	17·46	St. George's, 12 months - -	1
3/1	Royal Artillery, Southern Division.	134	100	2	1	3	2	4·73	746·3	22·38	14·92	35·30	12·88	17·26	St. George's, 12 months - -	1
	Royal Engineers - -	97	80	1	—	—	4	4·00	824·7	10·31	41·24	41·24	15·05	18·25	Various stations - - -	Various
2nd	West Riding Regiment -	763	660	6	1	7	22	35·09	865·0	9·17	28·83	45·99	16·78	19·52	Prospect, 12 months. Detachments, St. George's and Watford.	1
	Garrison Staff and Departments.	80	25	1	1	2	2	1·62	312·5	25·00	25·00	20·25	7·39	23·65	Various stations- - - -	Various
	Other Corps - - -	—	—	—	1	1	—	—	—	—	—	—	—	—		

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Brigade or Battalion.	Corps and Commands.	Average Annual Strength.	Admitted into Hospital.	Deaths. In the Command.	Deaths. Of Invalids.	Deaths. Total.	Invalids sent Home.	Average Number Constantly Sick.	Ratio per 1,000 of Strength. Admitted.	Died.	Invalided.	Constantly Sick.	Average Sick Time to each Soldier.	Average Duration of each Case of Sickness.	Stations occupied during the Year.	Completed Years of Service in Foreign Commands.
	WEST INDIES.												days.	days.		
	Royal Artillery, Coast Brigade	2	—	—	—	—	—	—	—	—	—	—	—	—	Newcastle, 12 months - - -	Various
6/1	Royal Artillery, London Division.	107	153	1	—	1	1	6·70	1429·9	9·34	9·34	62·61	22·85	15·98	Barbados, 12 months - - -	2
3/1	Royal Artillery, Welsh Division.	82	96	4	—	4	1	5·79	1170·7	48·78	12·19	70·61	25·77	22·01	Newcastle, 12 months. Detachment, Port Royal.	2
	Royal Engineers - -	21	21	—	—	—	—	·48	1000·0	—	—	20·47	7·47	7·47	Various stations - - -	Various
1st	East Yorkshire Regiment -	853	952	6	—	6	13	44·87	1113·4	7·02	15·20	52·48	19·15	17·20	Barbados, 12 months. Detachments, Newcastle and Trinidad.	1
1st Det.	North Staffordshire Regiment	—	—	—	—	—	—	·03	—	—	—	—	—	—	Newcastle, 2 weeks - - -	—
1st & 2nd	West India Regiments -	19	16	2	—	2	2	·69	842·0	105·26	105·26	36·31	13·25	15·74	Up Park Camp, 12 months - -	Various
	Garrison Staff and Departments.	35	14	—	—	—	—	·66	400·0	—	—	18·85	6·88	17·21	Various stations - - -	,,
	SOUTH AFRICA AND ST. HELENA.															
6th	Dragoons. - - -	422	261	—	—	—	13	21·40	618·5	—	30·81	50·71	18·51	29·93	Pietermaritzburg, 9 months. Etshowe, 3 months.	6
	Royal Artillery - - -	151	83	—	—	—	2	6·17	549·7	—	13·25	40·86	14·91	27·13	Pietermaritzburg, 12 months - -	3
7/1	Royal Artillery, Western Division.	90	53	2	—	2	2	3·08	588·9	22·22	22·22	34·22	12·49	21·21	St. Helena, 10 months. To Hong Kong, 27th October 1887.	7
8/1	Royal Artillery, Western Division.	107	114	2	—	2	3	7·08	1065·4	18·69	28·04	66·17	24·15	22·67	Cape Town, 10 months. Wynberg 2 months.	4
1/1	Royal Artillery, South Irish Division.	107	203	1	—	1	3	13·42	1897·2	9·35	28·04	125·42	45·78	24·13	Cape Town, 9 months. St. Helena, 3 months.	3

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Brigade or Battalion.	Corps and Commands.	Average Annual Strength.	Admitted into Hospital.	Deaths. In the Command.	Deaths. Of Invalids.	Deaths. Total.	Invalids sent Home.	Average Number Constantly Sick.	Ratio per 1,000 of Strength. Admitted.	Died.	Invalided.	Constantly Sick.	Sick Time to each Soldier.	Average Duration of each Case of Sickness.	Stations occupied during the Year.	Completed Years of Service in Foreign Commands.
	SOUTH AFRICA AND ST. HELENA—*cont.*												days.	days.		
	Royal Engineers - -	110	61	—	—	—	1	2·76	554·5	—	9·09	25·09	9·16	16·51	Various stations	Various
1st	Royal Scots - - -	893	950	4	—	4	13	63·18	1063·8	4·48	14·56	70·75	25·82	24·27	Cape Town, 2 months. Wynberg, 10 months.	3
1st	Royal Inniskilling Fusiliers -	588	569	7	—	7	7	33·44	967·7	11·90	11·90	56·87	20·76	21·45	Cape Town, 1 month. Pietermaritzburg, 11 months.	3
2nd	South Lancashire Regiment -	106	88	1	1	2	24	8·32	830·2	18·86	226·41	78·49	28·65	34·51	Pietermaritzburg, 1½ months. To Singapore, 15th February 1887.	2
1st	North Staffordshire Regiment	769	662	9	—	9	15	42·21	860·9	11·70	19·51	54·89	20·03	23·27	Pietermaritzburg, 11 months. From Barbados, 7th February 1887.	—
	Garrison Staff and Departments.	147	53	1	—	1	8	4·65	360·5	6·80	54·42	31·63	11·55	32·02	Various stations - - -	Various
	MAURITIUS.															
Dt. 2/1	Royal Artillery, Southern Division.	3	3	—	—	—	—	—	1000·0	—	—	—	—	—	Port Louis, 1 month. From China, 26th November 1887.	—
9/1	Royal Artillery, Western Division.	96	210	2	—	2	13	9·41	2187·5	20·83	135·42	98·02	35·78	16·35	Port Louis, 12 months. Detachment, Curepipe.	4
	Royal Engineers - -	26	27	2	—	2	1	1·15	1038·5	76·92	38·46	44·23	16·14	15·54	Various stations - - -	Various
Dt. 1st	Royal Inniskilling Fusiliers -	260	385	4	—	4	10	21·70	1480·8	15·38	38·46	83·46	30·46	20·31	Port Louis and Curepipe, 12 months	2
Dt. 2nd	South Lancashire Regiment -	—	3	—	—	—	—	·33	—	—	—	—	—	—	Port Louis - - - -	—
	Garrison Staff and Departments.	15	9	—	—	—	2	·56	600·0	—	133·3	37·33	13·62	22·71	Various stations - - -	Various

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Brigade or Battalion.	Corps and Commands.	Average Annual Strength.	Admitted into Hospital.	Deaths. In the Command.	Deaths. Of Invalids.	Deaths. Total.	Invalids sent Home.	Average Number Constantly Sick.	Ratio per 1,000 of Strength. Admitted.	Died.	Invalided.	Constantly Sick.	Average Sick Time to each Soldier.	Average Duration of each Case of Sickness.	Stations occupied during the Year.	Completed Years of Service in Foreign Commands.
	CEYLON.												days.	days.		
8/1	Royal Artillery, Southern Division.	106	102	2	—	2	1	5·52	962·3	18·87	9·43	52·08	19·01	19·75	Trincomalee, 4 months. Colombo, 8 months.	1
9/1	Royal Artillery, Southern Division.	100	103	3	—	3	2	6·32	1030·0	30·00	20·00	63·20	23·07	22·40	Colombo, 4 months. Trincomalee, 8 months	1
	Royal Engineers - -	16	14	—	—	—	—	·58	875·0	—	—	36·25	13·23	15·12	Various stations - - -	Various
1st	Argyll and Sutherland Highlanders.	833	1,004	11	—	11	11	59·44	1205·3	13·20	13·20	71·36	26·04	21·61	Colombo, 12 months. Detachments, Point de Galle and Kandy.	2
	Garrison Staff and Departments.	22	4	—	—	—	—	·18	181·8	—	—	8·18	2·99	16·42	Various stations - - -	Various
	CHINA AND STRAITS SETTLEMENTS.															
1/1	Royal Artillery, Lancashire Division.	105	89	—	—	—	1	3·25	847·6	—	9·52	30·95	11·30	13·33	Hong Kong, 12 months - -	3
2/1	Royal Artillery, Southern Division.	101	56	—	—	—	—	3·43	554·4	—	—	33·96	12·39	22·36	Fort Canning, 12 months - -	2
5/1	Royal Artillery, Eastern Division.	98	146	4	—	4	8	7·30	1489·8	40·82	81·63	74·49	27·19	18·25	Hong Kong, 12 months - -	2
6/1	Royal Artillery, Eastern Division.	104	39	—	—	—	1	2·52	375·0	—	9·61	24·23	8·34	23·59	Fort Canning, 12 months - -	1
7/1	Royal Artillery, Western Division.	4	4	—	—	—	—	·06	1000·0	—	—	15·00	5·47	5·47	Hong Kong, ¾ month. From St. Helena, 21st December 1887.	—
9/1	Royal Artillery, Western Division.	5	12	—	—	—	—	·51	2400·0	—	—	102·00	37·23	15·51	Fort Canning, ¾ month. From Mauritius, 12th December 1887.	—
	Royal Engineers - -	101	29	—	—	—	3	2·04	287·1	—	29·70	20·19	7·37	25·68	Various stations - - -	Various
1st	East Kent Regiment - -	61	120	—	—	—	2	5·81	1967·2	—	32·79	95·24	34·76	17·67	Tanglin, 2½ months. Detachment, Penang. To Bengal, 10th March 1887.	2
2nd	South Lancashire Regiment -	730	601	3	—	3	—	28·06	823·3	4·11	—	38·44	14·03	17·04	Tanglin, 10 months. Detachment, Penang. From Natal, 8th March 1887.	—

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Brigade or Battalion.	Corps and Commands.	Average Annual Strength.	Admitted into Hospital.	Deaths. In the Command.	Deaths. Of Invalids.	Deaths. Total.	Invalids sent Home.	Average Number Constantly Sick.	Ratio per 1,000 of Strength. Admitted.	Died.	Invalided.	Constantly Sick.	Average Sick Time to each Soldier.	Average Duration of each Case of Sickness.	Stations occupied during the Year.	Completed Years of Service in Foreign Commands.
	CHINA AND STRAITS SETTLEMENTS—*cont.*												days.	days.		
2nd	Northamptonshire Regiment -	898	1,145	5	—	5	19	44·47	1275·0	5·56	21·16	49·52	18·07	14·18	Hong Kong, 12 months - -	2
	Garrison Staff and Departments.	59	13	1	—	1	—	·63	220·3	16·95	—	10·68	3·89	17·68	Various stations - - -	Various
	EGYPT.															
20th	Hussars - - - -	368	334	—	—	—	8	21·20	907·6	—	21·74	57·61	21·02	23·16	Abbassiyeh, 12 months - -	2
F/B	Royal Horse Artillery - -	26	16	—	—	—	1	1·32	615·4	—	38·46	50·77	18·53	30·11	Abbassiyeh, 2 months. To England, 28th February 1887.	1
3/1	Royal Artillery, Northern Division.	160	216	5	—	5	5	11·74	1350·0	31·25	31·25	73·37	26·78	19·83	Cairo, 1⅞ months. Alexandria, 10⅛ months. Detachment, Abbassiyeh.	1
1/1	Royal Artillery, Southern Division.	18	8	—	—	—	—	1·72	444·4	—	—	95·55	34·88	78·47	Alexandria, 1½ months. To Malta, 17th February 1887.	2
6/1	Royal Artillery, Scottish Division.	2	—	—	—	—	—	·08	—	—	—	40·00	14·60	—	Cairo, ¼ month. To England, 7th January 1887.	3
9/1	Royal Artillery, North Irish Division.	3	2	—	—	—	1	·45	666·7	—	333·33	150·00	54·75	82·12	Alexandria, ¼ month. To England, 7th January 1887.	3
2/1	Royal Artillery, South Irish Division.	132	176	1	—	1	—	10·21	1333·3	7·57	—	77·35	28·23	21·17	Abbassiyeh, 10 months. To England, 25th October 1887.	2
	Royal Engineers - -	255	237	4	—	4	5	13·09	929·4	15·68	19·61	51·33	18·73	20·16	Various stations - - -	Various
1st	Royal Fusiliers - - -	825	950	20	—	20	38	54·79	1151·5	24·24	46·06	66·41	24·24	21·05	Assuan, 3 months. Cairo, 9 months -	2
1st	Yorkshire Regiment - -	803	923	7	—	7	17	62·41	1149·4	8·71	21·17	77·72	28·36	24·68	Assuan, 1½ months. Alexandria, 10½ months.	3
1st	Cheshire Regiment - -	683	780	11	—	11	28	55·14	1142·0	16·10	40·99	80·73	29·45	25·80	Cairo, 10 months. Assuan, 2 months	1
1st	Welsh Regiment - -	776	1,299	16	—	16	13	71·60	1674·0	20·61	16·75	92·25	33·67	20·11	Cairo, 10 months. Abbassiyeh, 2 months. Detachments, Assuan and Assiout.	1

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Brigade or Battalion.	Corps and Commands.	Average Annual Strength.	Admitted into Hospital.	Deaths. In the Command.	Deaths. Of Invalids.	Deaths. Total.	Invalids sent Home.	Average Number Constantly Sick.	Ratio per 1,000 of Strength. Admitted.	Died.	Invalided.	Constantly Sick.	Sick Time to each Soldier.	Average Duration of each Case of Sickness.	Stations occupied during the Year.	Completed Years of Service in Foreign Commands.
	EGYPT—*cont.*												days.	days.		
2nd	Essex Regiment - -	153	88	2	—	2	1	9·23	575·2	13·07	6·53	60·32	22·01	38·28	Alexandria, 2 months. To Malta, 27th February 1887.	3
1st	Shropshire Light Infantry -	85	50	2	—	2	1	6·19	588·2	23·53	11·76	72·82	26·58	45·18	Abbassiyeh, 1¼ months. To Malta, 17th February 1887.	1
2nd	Durham Light Infantry -	7	3	—	—	—	2	1·22	428·6	—	285·71	174·28	63·61	148·43	Cairo, ¼ month. To Bombay, 8th January 1887.	1
1st	Cameron Highlanders -	125	132	—	—	—	4	10·41	1056·0	—	32·00	83·28	30·39	28·78	Cairo, 2¼ months. Det., Abbassiyeh. To England, 11th March 1887.	4
3rd	Rifle Brigade - - -	131	144	2	—	2	—	5·88	1099·2	15·26	—	44·88	16·38	14·90	Cairo, 2 months. Det., Abbassiyeh, From England, 4th November 1887.	—
	Mounted Infantry - -	128	162	—	—	—	—	8·91	1265·6	—	—	69·61	25·40	20·07	Abbassiyeh, 12 months - -	Various
	Commissariat and Transport Corps.	128	54	4	—	4	4	3·64	421·9	31·25	31·25	28·43	10·38	24·60	Various stations - - -	"
	Ordnance Store Corps - -	163	105	2	—	2	5	7·13	644·2	12·27	30·67	43·74	15·90	24·78	" - - -	"
	Medical Staff Corps - -	193	96	3	—	3	6	6·19	497·5	15·54	31·08	32·07	11·70	23·53	" - - -	"
	Military Police - - -	98	43	1	—	1	2	2·56	462·4	10·75	21·50	27·52	10·05	21·73	" - - -	"
	Garrison Staff and Departments.	15	3	—	—	—	—	·08	200·0	—	—	5·33	1·94	9·75	" - - -	"
	Other Corps - - -	—	—	—	1	1	—	—	—	—	—	—	—	—		

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ABSTRACT No. XL.—TABLE, taken from the REPORT of the PRINCIPAL MEDICAL OFFICER, showing the ADMISSIONS, MORTALITY, and INVALIDING in each CORPS serving in the BENGAL COMMAND during the Year 1887.

Corps.	Average Annual Strength.	Admitted into Hospital.	Deaths in the Command.	Invalided.	Daily Average Sick.	Ratio per 1,000 of Strength.				Sick Time to each Soldier.	Average Duration of each Case of Sickness.	Stations occupied during the Year.	Years of Service in India.
						Admissions into Hospital.	Deaths.	Invalids.	Average Daily Sick.				
CAVALRY.													yrs. mo.
1st Dragoon Guards - -	570	851	10	12	48·63	1493·0	17·54	21·05	76·54	27·94	18·71	Rawal Pindi, 12 months; Dett. Camp Topa, 5 months.	7 2½
2nd „ „ - -	632	901	8	10	46·83	1425·6	12·66	15·82	74·10	27·05	18·97	Umballa, 12 months - - - - -	2 0
3rd „ „ - -	621	1,402	7	11	46·93	2257·6	11·27	17·71	75·57	27·58	12·22	Meerut, 1 month; Muttra, 11 months; Dett. Chakrata, 6 months.	3 1½
6th „ „ - -	515	568	5	17	32·63	1102·9	9·71	33·01	63·36	23·13	20·97	Sialkot, 10 months; Depôt, Sialkot, 2 months; Dett. Camp Topa, 5 months.	9 9
8th Hussars - - -	588	1,063	7	15	52·27	1807·8	11·90	25·51	88·89	32·45	17·95	Meerut, 12 months; Dett. Chakrata, 6 months -	9 0
17th Lancers - - -	610	640	14	8	33·51	1049·2	22·95	13·11	54·93	20·05	19·11	Lucknow, 12 months; Dett. Ranikhet, 6 months -	8 2
Total - - -	3,536	5,425	51	73	255·80	1534·2	14·42	20·64	72·34	26·40	17·21		
ROYAL ARTILLERY.													
D/A Royal Horse Artillery -	155	107	3	3	4·66	690·3	19·35	19·35	30·06	10·97	15·90	Sialkot, 12 months - - - - -	10 11
E/A „ „ -	103	125	2	1	6·86	766·9	12·27	6·13	42·09	15·36	20·03	Lucknow, 12 months; Dett. Ranikhet, 6 months -	10 11
F/A „ „ -	150	250	3	8	13·21	1666·7	20·00	53·33	88·07	32·14	19·29	Meerut, 12 months - - - - -	11 1
G/A „ „ -	157	147	—	2	7·19	936·3	—	12·74	45·80	16·72	17·85	Umballa, 12 months. - - - - -	11 1

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Brigade or Battalion.	Corps and Commands.	Average Annual Strength.	Admitted into Hospital.	Deaths.			Invalids sent Home.	Average Number Constantly Sick.	Ratio per 1,000 of Strength.				Sick Time to each Soldier.	Average Duration of each Case of Sickness.	Stations occupied during the Year.	Completed Years of Service in Foreign Commands.
				In the Command.	Of Invalids.	Total.			Admitted.	Died.	Invalided.	Constantly Sick.				
	EGYPT—*cont.*												days.	days.		
2nd	Essex Regiment - -	153	88	2	—	2	1	9·23	575·2	13·07	6·53	60·32	22·01	38·28	Alexandria, 2 months. To Malta, 27th February 1887.	3
1st	Shropshire Light Infantry -	85	50	2	—	2	1	6·19	588·2	23·53	11·76	72·82	26·58	45·18	Abbassiyeh, 1½ months. To Malta, 17th February 1887.	1
2nd	Durham Light Infantry -	7	3	—	—	—	2	1·22	428·6	—	285·71	174·28	63·61	148·43	Cairo, ¼ month. To Bombay, 8th January 1887.	1
1st	Cameron Highlanders -	125	132	—	—	—	4	10·41	1056·0	—	32·00	83·28	30·39	28·78	Cairo, 2½ months. Det., Abbassiyeh. To England, 11th March 1887.	4
3rd	Rifle Brigade - - -	131	144	2	—	2	—	5·88	1099·2	15·28	—	44·88	16·38	14·90	Cairo, 2 months. Det., Abbassiyeh, From England, 4th November 1887.	—
	Mounted Infantry - -	128	162	—	—	—	—	8·91	1265·6	—	—	69·61	25·40	20·07	Abbassiyeh, 12 months - -	Various
	Commissariat and Transport Corps.	128	54	4	—	4	4	3·64	421·9	31·25	31·25	28·43	10·38	24·60	Various stations - - -	,,
	Ordnance Store Corps - -	163	105	2	—	2	5	7·13	644·2	12·27	30·67	43·74	15·90	24·78	,, - - -	,,
	Medical Staff Corps - -	193	96	3	—	3	6	6·19	497·5	15·54	31·08	32·07	11·70	23·53	,, - - -	,,
	Military Police - - -	98	43	1	—	1	2	2·55	462·4	10·75	21·50	27·52	10·05	21·73	,, - - -	,,
	Garrison Staff and Departments.	15	3	—	—	—	—	·08	200·0	—	—	5·33	1·94	9·73	,, - - -	,,
	Other Corps - - -	—	—	—	1	1	—	—	—	—	—	—	—	—		

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ABSTRACT No. XL.—TABLE, taken from the REPORT of the PRINCIPAL MEDICAL OFFICER, showing the ADMISSIONS, MORTALITY, and INVALIDING in each CORPS serving in the BENGAL COMMAND during the Year 1887.

Corps.	Average Annual Strength.	Admitted into Hospital.	Deaths in the Command.	Invalided.	Daily Average Sick.	Ratio per 1,000 of Strength.				Sick Time to each Soldier.	Average Duration of each Case of Sickness.	Stations occupied during the Year.	Years of Service in India.
						Admissions into Hospital.	Deaths.	Invalids.	Average Daily Sick.				
CAVALRY.													yrs. mo.
1st Dragoon Guards - -	570	851	10	12	43·63	1493·0	17·54	21·05	76·54	27·94	18·71	Rawal Pindi, 12 months; Dett. Camp Topa, 5 months.	7 2¼
2nd „ „ - -	632	901	8	10	46·83	1425·6	12·66	15·82	74·10	27·05	18·97	Umballa, 12 months - - - - -	2 0
3rd „ „ - -	621	1,402	7	11	46·93	2257·6	11·27	17·71	75·57	27·58	12·22	Meerut, 1 month; Muttra, 11 months; Dett. Chakrata, 6 months.	3 1½
6th „ „ - -	515	568	5	17	32·63	1102·9	9·71	33·01	63·36	23·13	20·97	Sialkot, 10 months; Depôt, Sialkot, 2 months; Dett. Camp Topa, 5 months.	9 9
8th Hussars - - -	588	1,063	7	15	52·27	1807·8	11·90	25·51	88·89	32·45	17·95	Meerut, 12 months; Dett. Chakrata, 6 months -	9 0
17th Lancers - - -	610	640	14	8	33·51	1049·2	22·95	13·11	54·93	20·05	19·11	Lucknow, 12 months; Dett. Ranikhet, 6 months -	8 2
Total - - -	3,536	5,425	51	73	255·80	1534·2	14·42	20·64	72·34	26·40	17·21		
ROYAL ARTILLERY.													
D/A Royal Horse Artillery -	155	107	3	3	4·66	690·3	19·35	19·35	30·06	10·97	15·90	Sialkot, 12 months - - - - -	10 11
E/A „ „ -	103	125	2	1	6·86	766·9	12·27	6·13	42·09	15·36	20·03	Lucknow, 12 months; Dett. Ranikhet, 6 months -	10 11
F/A „ „ -	150	250	3	8	13·21	1666·7	20·00	53·33	88·07	32·14	19·29	Meerut, 12 months - - - - -	11 1
G/A „ „ -	157	147	—	2	7·19	936·3	—	12·74	45·80	16·72	17·85	Umballa, 12 months. - - - - -	11 1

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Corps.	Average Annual Strength.	Admitted into Hospital.	Deaths in the Command.	Invalided.	Daily Average Sick.	Ratio per 1,000 of Strength.				Sick to each Soldier.	Average Duration of each Case of Sickness.	Stations occupied during the Year.	Years of Service in India.	
						Admissions into Hospital.	Deaths.	Invalids.	Average Daily Sick.	Average Time to each Soldier.			yrs.	mo.
L/A Royal Horse Artillery -	148	212	2	5	10·11	1432·4	13·51	33·78	68·31	24·93	17·41	Meerut, 12 months - - - - -	10	1
K/B „ „ -	165	142	3	4	7·16	860·6	18·18	24·24	43·39	15·84	18·40	Rawal Pindi, 11 months; Campbellpore, ½ month; marching, ½ month; Dett. Camp Topa, 5 months.	7	0
N/B „ „ -	155	197	—	3	9·13	1271·0	—	19·35	58·90	21·50	16·92	Umballa, 9½ months; Rawal Pindi, 1½ months; marching, 1 month.	9	1½
A/1 Royal Artillery - -	159	198	1	7	9·23	1245·3	6·29	44·03	58·05	21·19	17·01	Dinapore, 10 months; Cawnpore, ½ month; marching, 1½ months.	4	2
B/1 „ „ - -	149	179	3	9	10·97	1201·3	20·13	60·40	73·62	26·87	22·37	Mooltan, 11 months; marching, 1 month - -	7	0
G/1 „ „ - -	143	293	1	5	12·09	2048·9	6·99	34·97	84·55	30·86	15·06	Cawnpore, 12 months - - - - -	7	0
1/1 Northern Division, R.A. -	99	134	1	—	8·49	1353·5	10·10	—	85·76	31·30	23·13	Rawal Pindi, 3 months; Kalabagh, 5½ months; marching 3½ months.	1	10
1/1 London „ „ -	87	94	1	2	8·09	1080·5	11·49	22·99	92·99	33·94	31·41	Campbellpore, 10½ months; Rawal Pindi, 1½ months.	8	0
1/1 Scottish „ „ -	41	36	—	—	1·75	878·0	—	—	42·68	15·58	17·74	Fort Allahabad, 2½ months - - - -	2	2
1/1 Welsh „ „ -	5	5	—	—	0·16	1000·0	—	—	32·00	11·68	11·68	Roorkee, 1½ months - - - - -	0	1½
2/1 Eastern „ „ -	61	248	1	5	8·82	4065·6	16·39	81·97	144·59	52·78	12·98	Delhi, 9½ months; Dett. Agra. 2½ months - -	1	1½
2/1 C.P. „ „ -	116	149	1	4	7·50	1284·5	8·62	34·48	64·66	23·60	18·37	Rawal Pindi, 5 months; Bara Gully, 6 months; and marching, 1 month.	1	11
2/1 London „ „ -	21	21	1	—	1·44	1000·0	47·62	—	68·57	25·03	25·03	Umballa, 1⅔ months - - - - -	0	2
2/1 Scottish „ „ -	106	140	3	2	4·92	1320·8	28·30	18·87	46·42	16·94	12·83	Quetta, 11½ months; marching, ½ month; Dett. Camp Shanglow, 2½ months.	4	2
2/1 Welsh „ „ -	14	31	—	—	1·54	2214·3	—	—	110·00	40·15	18·13	Roorkee, 1⅔ months - - - - -	0	2
3/1 South Irish „ „ -	101	143	1	3	8·57	1415·8	9·90	29·70	84·85	30·97	21·87	Rawal Pindi, 5½ months; Khyra Gully, 5½ months; and marching, 1 month.	2	2
3/1 Scottish „ „ -	93	209	3	4	8·24	2247·3	32·26	43·01	88·60	32·34	14·39	Fort Lahore, 12 months; Dett. Amritsar, 12 months.	4	2
4/1 Lancashire „ „ -	7	4	—	—	1·00	571·4	—	—	142·86	52·14	91·25	Rawal Pindi, 1½ months - - - -	8	0

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Corps.	Average Annual Strength.	Admitted into Hospital.	Deaths in the Command.	Invalided.	Daily Average Sick.	Ratio per 1,000 of Strength.				Sick Time to each Soldier.	Average Duration of each Case of Sickness.	Stations occupied during the Year.	Years of Service in India.
						Admissions into Hospital.	Deaths.	Invalids.	Average Daily Sick.				
													yrs. mo.
4/1 Eastern Division, R.A. -	15	32	4	—	1·21	2133·3	266·67	—	80·67	29·44	13·80	Roorkee, 1⅔ months - - - - -	0 2
5/1 Lancashire „ „ -	82	83	2	—	5·83	1012·2	24·39	—	71·10	25·95	25·64	Calcutta, 8⅓ months; marching, ½ month - -	11 6
5/1 Western „ „ -	124	128	1	2	4·75	1032·3	8·06	16·13	38·31	13·98	13·54	Quetta, 12 months - - - - -	8 0
5/1 Southern „ „ -	76	85	1	—	4·05	1118·4	13·16	—	53·29	19·45	17·39	Rawal Pindi, 2½ months; Thobba, 5½ months; marching, ½ month.	11 10
5/1 Welsh „ „ -	111	142	3	6	8·81	1279·3	27·03	54·05	79·37	28·97	22·65	Fort Allahabad, 12 months - - - -	8 2
7/1 Northern „ „ -	56	145	1	1	7·88	2589·3	17·86	17·86	140·71	51·36	19·84	Jutogh, 5 months; Umballa, ½ month; Barrackpore, 1½ months; marching, 1 month.	9 1
7/1 Eastern „ „ -	111	188	1	1	8·03	1693·7	9·01	9·01	72·34	26·40	15·59	Rawal Pindi, 12 months; Dett. Fort Attock, 12 months; Camp Topa, 5 months.	6 2
7/1 C.P. „ „ -	13	18	—	1	2·09	1384·6	—	76·92	160·77	58·68	42·38	Delhi, 1½ months - - - - -	2 0
7/1 Southern „ „ -	76	196	1	1	8·62	2578·9	13·16	13·16	113·42	41·40	16·05	Jhansi, 10⅔ months; marching, 1 month - -	11 10
7/1 Scottish „ „ -	14	22	—	—	0·58	1571·4	—	—	41·43	15·12	9·62	Jhansi, 1½ months - - - - -	0 2
8/1 Northern „ „ -	135	198	2	4	8·53	1466·7	14·81	29·63	63·19	23·06	15·72	Agra, 7⅔ months; Delhi, ⅔ month; Calcutta, 3⅔ months.	8 3
8/1 Scottish „ „ -	15	37	—	—	0·98	2466·7	—	—	65·33	23·85	9·67	Delhi, 1⅔ months; Dett. Agra, 1⅓ months - -	0 2
9/1 Northern „ „ -	72	99	1	3	6·01	1375·0	13·89	41·67	83·47	30·47	22·16	Darjeeling, 9 months - - - - -	9 0
9/1 Eastern „ „ -	102	131	—	2	8·72	1284·3	—	19·61	85·49	31·20	24·30	Ferozepore, 12 months - - - -	7 0
9/1 C.P. „ „ -	85	163	3	—	9·48	1917·6	35·29	—	111·53	40·71	21·23	Jutogh, 6⅔ months; Umballa, 1⅔ months; and marching, 1 month.	9 1
J/2 Royal Artillery - -	166	153	2	2	6·81	921·7	12·05	12·05	41·02	14·97	16·25	Rawal Pindi, 2⅓ months; Campbellpore, 9⅔ months	9 1⅓
R/2 „ „ - -	134	166	2	2	7·86	1238·8	14·93	14·93	58·66	21·41	17·28	Umballa, 1⅔ months; Jullunder, 8 months, Mooltan, 1 month; and marching, 1⅓ months; Depôt, Jullundur, 4 months.	9 1⅓

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Corps.	Average Annual Strength.	Admitted into Hospital.	Deaths in the Command.	Invalided.	Average Daily Sick.	Ratio per 1,000 of Strength.				Sick to each Soldier.	Average Duration of each Case of Sickness.	Stations occupied during the Year.	Years of Service in India.
						Admissions into Hospital.	Deaths.	Invalids.	Average Daily Sick.	Average Time			yrs. mo.
K/3 Royal Artillery - -	152	345	5	1	15·33	2269·7	32·89	6·58	100·86	36·81	16·22	Meean Meer, 12 months; Dett. Ranikhet, 6 mons.	7 0
L/3 ,, ,, - -	143	184	3	4	6·88	1286·7	20·98	27·97	48·11	17·56	13·65	Meerut, 10 months; marching, 2 months; Dett. Peshawar, 1½ months.	7 0
M/3 ,, ,, - -	159	237	2	6	12·44	1490·6	12·58	37·74	78·24	28·56	19·16	Peshawar, 11 months; Campbellpore, ⅔ months; and marching, ½ month; Dett. Sanitary Camp, Tarvo, ⅔ month; and Cherat, 5 months.	7 0
N/3 ,, ,, - -	157	245	1	3	10·49	1560·5	6·37	19·11	66·82	24·39	15·63	Rawal Pindi, 10⅔ months; and Campbellpore, 1⅓ months; Dett. Camp Topa, 5 months.	7 0
O/3 ,, ,, - -	162	166	5	1	9·53	1024·7	30·86	6·17	58·83	21·47	20·95	Lucknow, 12 months; Dett. Ranikhet, 6 months -	7 0
P/3 ,, ,, - -	145	267	2	8	10·04	1841·4	13·79	55·17	69·24	25·27	13·73	Barrackpore, 12 months - - - -	10 1
Q/3 ,, ,, - -	146	172	3	1	8·43	1178·1	20·55	6·85	57·74	21·08	17·89	Jubbulpore, 12 months - - - -	10 1
R/3 ,, ,, - -	149	188	3	9	14·06	1261·7	20·13	60·40	94·36	34·44	27·30	Fyzabad, 10 months; Dinapore, ⅔ month; and marching, 1½ months.	10 1
C/4 ,, ,, - -	1	1	—	—	0·05	1000·0	—	—	50·00	18·25	18·25	Headquarters in England; Depôt, Pachmarhi, 3 months.	—
D/4 ,, ,, - -	152	185	4	6	7·98	1217·1	26·32	39·47	52·50	19·16	15·74	Meerut, 1⅔ months; Agra, 10 months; and marching, ⅓ month.	13 10
E/4 ,, ,, - -	150	204	3	9	12·20	1360·0	20·00	60·00	81·33	29·69	21·83	Allahabad, 11⅔ months - - - -	13 10
K/4 ,, ,, - -	149	193	1	1	8·38	1295·3	6·71	6·71	56·24	20·53	15·85	Meerut, 11⅓ months - - - - -	1 0
L/4 ,, ,, - -	175	136	1	—	10·51	777·1	5·71	—	60·06	21·92	28·21	Ferozepore, 9 months; Meean Meer, 1⅓ months; and marching, 1⅔ months.	10 1
M/4 ,, ,, - -	148	477	2	—	14·20	3223·0	13·51	—	95·95	35·02	10·87	Saugor, 12 months - - - - -	1 1
O/4 ,, ,, - -	136	404	3	4	15·25	2970·6	22·06	29·41	112·13	40·93	13·78	Meean Meer, 12 months - - - -	10 11
P/4 ,, ,, - -	143	219	10	3	9·51	1531·5	69·93	20·98	66·50	24·27	15·85	Nowgong, 12 months - - - - -	1 0
Q/4 ,, ,, - -	145	199	1	1	9·32	1372·4	6·90	6·90	64·28	23·46	17·09	Bareilly, 11 months; and marching, ½ month; Dett. Bareilly, ½ month.	1 0
Total - - -	6,094	8,872	103	149	425·97	1455·9	16·90	24·45	69·90	25·51	17·52		

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Corps.	Average Annual Strength.	Admitted into Hospital.	Deaths in the Command.	Invalided.	Daily Average Sick.	Ratio per 1,000 of Strength.				Sick Time to each Soldier.	Average Duration of each Case of Sickness.	Stations occupied during the Year.	Years of Service in India.
						Admissions into Hospital.	Deaths.	Invalids.	Average Daily Sick.				
H. Coy., Royal Engineers -	35	33	—	—	0·79	942·9	—	—	22·57	8·24	8·74	Roorkee, 12 months; Dett. Calcutta, 12 months -	yrs. mo. 20 0
INFANTRY.													
2nd R.W. Surrey Regiment -	230	509	6	14	37·37	2213·0	26·09	60·87	162·48	59·30	26·80	Headquarters, Burma, Depôt, Cawnpore, 12 months; Dett. Chakrata, 6 months.	—
1st East Kent „ -	748	673	7	5	35·88	899·7	9·36	6·68	47·97	17·51	19·46	Ranikhet, 7½ months; Bareilly, 1 month; and marching, ½ month; Depôt, Ranikhet, ¾ month.	0 9
2nd R. Lancaster „ -	980	1,353	8	8	52·62	1380·6	8·16	8·16	53·69	19·60	14·20	Quetta, 12 months; Dett. Camp Shanglow, 2½ months.	7 10
2nd Northumberland Fusiliers	974	2,460	23	14	88·23	2525·7	22·59	14·37	90·58	33·06	13·09	Meean Meer, 10 months: Rawal Pindi, 1 month; and marching, 1 month; Dett. Fort Lahore, 11¾ months; and Meean Meer, 1½ months; and Dalhousie, 12 months.	7 11
2nd R. Warwickshire - -	944	1,346	12	8	55·26	1425·8	12·71	8·47	58·54	21·37	14·98	Jubbulpore, 12 months; Dett. Saugor, 12 months.	9 2
2nd Liverpool Regiment -	946	1,489	11	36	88·61	1510·6	11·63	38·05	93·67	34·19	22·63	Fyzabad, 12 months; Dett. Ranikhet, 6 months -	10 2
2nd Norfolk „ -	521	776	7	5	45·22	1489·4	13·44	9·60	86·79	31·68	21·27	Sitapur, 12 months - - - - -	13 1
Half Bn. „ „ -	419	597	13	5	26·79	1424·8	31·03	11·93	63·94	23·34	16·38	Benares, 12 months - - - - -	—
2nd Lincolnshire Regiment -	580	1,461	5	21	64·02	2519·0	8·62	36·21	110·38	40·29	15·99	Roorkee, 10 months; Meerut, 2 months; Dett. Chakrata, 6 months.	5 11
Half Bn „ „ -	362	901	4	2	29·07	2488·9	11·05	5·52	80·30	29·31	11·78	Delhi, 10½ months - - - - -	—
2nd Devonshire „	579	1,341	13	9	45·58	2316·1	22·45	15·54	78·72	28·73	12·41	Jhansi, 12 months; Dett. Sipri, 12 months -	10 0
Half Bn. „ „ -	360	542	7	10	24·00	1505·6	19·44	27·78	66·67	24·33	16·16	Nowgong, 12 months - - - - -	—
1st Suffolk Regiment - -	950	751	8	8	44·69	790·5	8·42	8·42	47·04	17·17	21·72	Rawal Pindi, 6 months; and Kuldunnah, 6 months; Dett. Campbellpore, 4 months; Thobba, 6 months.	11 2

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Corps.	Average Annual Strength.	Admitted into Hospital.	Deaths in the Command.	Invalided.	Daily Average Sick.	Ratio per 1,000 of Strength.				Sick Average Time to each Soldier.	Average Duration of each Case of Sickness.	Stations occupied during the Year.	Years of Service in India.
						Admissions into Hospital.	Deaths.	Invalids.	Average Daily Sick.				
													yrs. mo.
2nd W. Yorkshire Regiment	877	1,091	11	15	62·84	1244·0	12·54	17·10	71·65	26·15	21·02	Mooltan, 12 months; Dett. Dalhousie, 12 months	9 2
2nd Leicestershire „	927	1,013	12	14	66·88	1092·8	12·95	15·10	72·15	26·33	24·10	Lucknow, 12 months; Dett. Ranikhet, 6¾ months	11 2
2nd Royal Irish „	890	1,184	7	15	66·56	1330·3	7·87	16·85	74·79	27·30	20·52	Umballa, 2½ months; Subathu, 7¾ months; and marching, 2 months; Dett. Jutogh, 10 months; Subathu, 4 months; and Dagshai, 12 months.	2 11
2nd Royal Scottish Fusiliers	76	115	1	—	5·12	1513·2	13·16	—	67·37	24·59	16·25	Umballa, ¾ month; Dett. Dagshai, ⅓ month	5 11
2nd Cheshire Regiment	520	563	6	6	28·73	1082·7	11·54	11·54	55·25	20·17	18·63	Umballa, 9¾ months; and marching, ¼ month; Dett. Dagshai, 6⅓ months.	14 2
Half Bn. „ „	265	188	1	—	8·90	709·4	3·77	—	33·58	12·26	17·28	Salan, 6½ months; and marching, ½ month	—
1st R. Welsh Fusiliers	777	1,348	18	27	80·05	1734·9	23·17	34·75	103·02	37·60	21·68	Lucknow, 9 months; Dett. Ranikhet, 6½ months	7 3
1st K.O. Borderers	936	1,280	19	19	69·08	1367·5	20·30	20·30	73·80	26·94	19·70	Meerut, 12 months; Dett. Cholera Camp, Meerut, 1 month; and Fatehgarh, 9½ months; and Chakrata, 6½ months.	12 2
2nd Scottish Rifles	524	662	8	3	35·37	1263·4	15·27	5·73	67·50	24·64	19·50	Bareilly, 3¾ months; Chaubuttia, 7¾ months; marching, ¾ month; Dett. Moradabad, 1 month.	8 2
Half Bn. „ „	389	603	3	8	33·91	1550·1	7·71	20·57	87·17	31·82	20·53	Shahjehanpur, 12 months	—
1st Worcester Regiment	822	1,017	8	4	38·65	1237·2	9·73	4·87	47·02	17·16	13·87	Quetta, 9¾ months; Dett. Camp, Shanglow, 5 months.	8 10
1st East Lancashire „	915	1,266	10	19	61·43	1383·6	10·93	20·76	67·14	24·50	17·71	Ferozepore, 12 months; Dett. Meean Meer, 2 months; Fort Lahore, ½ month; and Dalhousie, 12 months.	7 0
1st East Surrey „	922	1,388	26	10	65·88	1505·4	28·20	10·85	71·45	26·06	17·32	Allahabad, 11 months; and marching, 1 month; Dett. Fort Allahabad, 8½ months; Chunar, 11 months; Chakrata, 6 months.	3 0
1st West Riding „	871	683	11	10	35·21	784·2	12·63	11·48	40·42	14·76	18·82	Rawal Pindi, 5 months; Gharial, 6½ months; and marching, ¾ month; Dett. Meean Meer, ¾ month.	12 1

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Corps.	Average Annual Strength.	Admitted into Hospital.	Deaths in the Command.	Invalided.	Daily Average Sick.	Ratio per 1,000 of Strength.				Sick Time to each Soldier.	Average Duration of each Case of Sickness.	Stations occupied during the Year.	Years of Service in India.
						Admissions into Hospital.	Deaths.	Invalids.	Average Daily Sick.				
													yrs. mo.
1st Border Regiment - -	975	1,693	14	31	77·48	1736·4	14·36	31·79	79·47	29·01	16·70	Sialkot, 12 months; Dett. Amritsar, 12 months; and Dalhousie, 12 months.	12 2
2nd Royal Sussex Regiment -	960	842	8	2	42·77	877·1	8·33	2·08	44·55	16·26	18·54	Rawal Pindi, 12 months; Dett. Campbellpore, 8 months; and Camp Topa, 5 months.	2 0
2nd Derbyshire „ -	926	1,680	11	11	69·76	1814·2	11·88	11·88	75·33	27·50	15·16	Dum Dum, 12 months; Dett. Barrackpore, 12 months; and Dinapore, 12 months.	5 2
st K.O. Yorkshire Light Infantry.	77	189	—	9	7·90	2454·5	—	116·88	102·60	37·45	15·26	Headquarters in England; Depôt Dinapore, 10½ months.	—
th King's Royal Rifle Corps	814	1,160	8	8	65·82	1425·1	9·83	9·83	80·86	29·51	20·71	Peshawar, 12 months; Dett. Sanitary Camp, Pubbi, ⅔ month; and Sanitary Camp, Tarvo, ⅔ month.	11 1
2nd Wiltshire Regiment -	984	1,518	23	9	77·89	1542·7	23·37	9·15	79·16	28·89	18·73	Peshawar, 6½ months; Cherat, 5½ months; and marching, ½ month; Dett. Jutogh, 2 months; Subathu, 2 months; and Sanitary Camp, Pubbi, ⅔ month; Sanitary Camp, Tarvo, ⅔ month; Cholera Camp, Chumkani, ⅔ month; and Depôt, Peshawar, 5½ months.	5 11
2nd Manchester „ -	859	1,259	10	18	61·33	1465·7	11·64	20·95	71·40	26·06	17·78	Agra, 12 months; Dett. Chaubuttia, 6 months; and Chakrata, 6 months.	5 2
1st Durham Light Infantry -	74	85	1	8	9·00	1148·6	13·51	108·11	121·62	44·39	38·65	Allahabad, 2½ months; Dett. Fort Allahabad, 1½ months; and Chunar, 1 months.	15 0
2nd Highland „ -	946	700	6	9	35·73	740·0	6·34	9·51	37·77	13·79	18·63	Umballa, 2½ months; Dagshai, 7½ months; Peshawar, ½ month; and marching, 2 months; Dett. Dagshai, 5½ months; Peshawar, ½ month.	3 2
2nd Seaforth Highlanders -	988	1,347	10	14	67·92	1363·4	10·12	14·17	68·74	25·09	18·40	Meerut, 1 month; Bareilly, 10⅔ months; and marching, ½ month; Dett. Bareilly, 1½ months; Moradabad, 10⅔ months; Ranikhet, 6⅔ months.	8 9½
1st Royal Irish Fusiliers -	946	1,186	19	13	58·36	1253·7	20·08	13·74	61·69	22·52	17·96	Nowshera, 11⅔ months; Peshawar, ⅓ month; Dett. Chaubuttia, 6 months; Attock, 12 months; Peshawar, ½ month; Sanitary Camp, near Nowshera, ⅔ month; and Cherat, 5 months.	4 2
1st Connaught Rangers -	947	1,399	11	15	70·67	1477·3	11·62	15·84	74·62	27·24	18·44	Umballa, 1 month; Jullundur, 10⅔ months; and marching, ½ month; Dett. Dagshai, 1⅔ months; Bhagsu, 5⅔ months; and Depôt, Jullundur, 1½ months.	8 2

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Corps.	Average Annual Strength.	Admitted into Hospital.	Deaths in the Command.	Invalided.	Average Daily Sick.	Ratio per 1,000 of Strength.				Sick Time to each Soldier.	Average Duration of each Case of Sickness.	Stations occupied during the Year.	Years of Service in India.
						Admissions into Hospital.	Deaths.	Invalids.	Average Daily Sick.				
													yrs. mo.
1st Leinster Regiment -	946	1,304	13	16	84·36	1378·4	13·74	16·91	89·18	32·55	23·61	Calcutta, 12 months; Dett. Dum Dum, 9 months; Meerut, 2½ months; Chakrata, 7 months.	10 2
4th Bn. Rifle Brigade - -	1,141	1,116	14	29	70·35	978·1	12·27	25·42	61·66	22·50	23·01	Lucknow, ½ month; and marching, 2 months; Dett. Dinapore, 1½ months; Moradabad, 1½ months; Chakrata, 2½ months; Cherat, 5 months; and Depôt, Chakrata, 3 months.	14 1
Total - - -	29,887	42,018	412	487	2095·29	1405·9	13·79	16·29	70·11	25·59	18·20		
Men Attached (Corps, not stated).	300	222	7	—	10·84	740·0	23·33	—	36·13	13·19	17·82	Various station hospitals.	
Garrison Staff and Departments.	1,069	875	29	55	61·55	818·5	27·13	51·45	57·58	21·02	25·68	Various station hospitals.	
Grand Total - -	40,921	57,445	602	764	2850·24	1403·8	14·71	18·67	69·65	25·42	18·11		

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ABSTRACT No. XLI.—TABLE, taken from the REPORT of the PRINCIPAL MEDICAL OFFICER, showing the ADMISSIONS, MORTALITY, and INVALIDING in each CORPS serving in the MADRAS COMMAND during the Year 1887.

Corps.	Average Annual Strength.	Admitted into Hospital.	Deaths in the Command.	Invalided.	Average Number Constantly Sick.	Ratio per 1,000 of Strength.				Sick Time to each Soldier.	Average Duration of each Case of Sickness.	Stations occupied during the Year.	Years of Service in India.
						Admissions into Hospital.	Deaths.	Invalids.	Average Constantly Sick.				
CAVALRY.													months. yrs. mo.
7th Hussars	610	739	13	7	50	1208·20	19·67	11·48	81·97	29·92	24·76	Secunderabad	12 1 0
12th Lancers	389	323	3	12	21	835·48	7·71	30·85	53·98	19·70	23·58	Bangalore, 9½, and left for England 21st Oct. 1887.	11 0
21st Hussars	17	14	—	—	—	823·53	—	—	—	—	—	Arrived at Bangalore from England 30th Dec. 1887.	
Details of Cavalry	21	9	—	—	1	428·57	—	—	47·62	17·38	40·56		
Total	1,037	1,087	15	19	72	1048·22	14·46	18·32	69·43	25·34	24·18		
ROYAL ARTILLERY.													
H/B Bde. Royal Horse Artillery	148	212	2	5	13	1432·43	13·51	33·78	84·84	32·06	22·38	Secunderabad	12 2 2
M/B „ „ „	151	118	3	5	8	781·46	19·86	33·11	52·98	19·34	24·75	Bangalore	12 9 11
D/1 „ Royal Artillery	150	166	1	6	10	1106·67	6·67	40·00	66·67	24·33	21·99	Secunderabad	12 4 2
P/1 „ „	144	225	3	5	12	1562·50	20·83	34·72	83·33	30·42	19·47	St. Thomas' Mount, 11½, and left for Bangalore.	8 1
Q/1 „ „	150	207	2	2	10	1380·00	13·33	13·33	66·67	24·33	17·63	St. Thomas Mount, 10½, and Secunderabad, 1½	9 1
R/1 „ „	146	138	3	4	10	945·21	20·55	27·40	68·49	25·00	26·45	Belgaum	12 8 11
S/1 „ „	147	172	2	6	8	1170·07	13·61	40·82	54·42	19·86	16·98	Bellary	12 8 2
U/1 „ „	156	164	3	2	8	1051·28	19·23	12·82	51·28	18·72	17·80	Kamptee	12 3 2

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Corps.	Average Annual Strength.	Admitted into Hospital.	Deaths in the Command.	Invalided.	Average Number Constantly Sick.	Ratio per 1,000 of Strength.				Sick Time to each Soldier.	Average Duration of each Case of Sickness.	Stations occupied during the Year.	Years of Service in
						Admissions into Hospital.	Deaths.	Invalids.	Average Constantly Sick.				months. yrs. mo.
G/2 Bde. Royal Artillery -	159	228	1	4	11	1433·96	6·29	25·16	69·18	25·25	17·61	Bellary - - - - - - 12	12 10
M/2 „ „ - -	159	132	2	3	8	830·19	12·58	18·87	50·31	18·36	22·12	Bangalore, 9½; on the march, 1; and Secunderabad, 1½.	9 1
I/3 „ „ - -	162	222	1	2	13	1370·37	6·17	12·35	80·25	29·29	21·37	Secunderabad - - - - - 12	7 11
I/4 „ „ - -	153	150	1	4	9	980·39	6·54	26·14	58·82	21·47	21·90	Bangalore - - - - - - 12	1 10
4/1 „ Welsh Division R.A. -	95	94	—	1	6	989·47	—	10·53	63·16	23·05	23·30	Secunderabad - - - - - 12	8 2
4/1 „ North Irish „ „	115	157	2	1	9	1365·22	17·39	8·70	78·26	28·57	20·92	Fort St. George - - - - - 12	6 1
8/1 „ London „ „	10	12	—	—	1	1200·00	—	—	100·00	36·50	30·42	Burma Field Service, 3, and left for Bombay	11 10
5/1 „ Southern „ „	1	1	—	—	—	1000·00	—	—	—	—	—	Burma Field Service, 3½, and left for Rawal Pindi.	11 10
6/1 „ „ „ „	106	177	—	4	9	1669·81	—	37·74	84·91	30·99	18·56	Rangoon, 12 (detachments at Thayetmyo and Toungoo).	11 10
4/1 „ Lancashire „ „	2	10	—	—	—	5000·00	—	—	—	—	—	Arrived at Toungoo from Rawal Pindi 26th Dec. 1887.	8 0
7/1 „ Cinque Ports „	2	1	—	—	—	500·00	—	—	—	—	—	From Bengal to Burma Field Service.	
Details, R.A. - - -	55	40	—	2	2	727·27	—	36·36	36·36	13·27	18·25		
Total - -	2,211	2,626	26	56	147	1187·70	11·76	25·33	66·49	24·27	20·43		
ROYAL ENGINEERS.													
K. Company, Royal Engineers	37	15	—	—	1	405·41	—	—	27·03	9·86	24·33	Bangalore - - - - - 12	12 0

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Corps.	Average Annual Strength.	Admitted into Hospital.	Deaths in the Command.	Invalided.	Average Number Constantly Sick.	Ratio per 1,000 of Strength.				Sick Time to each Soldier.	Average Duration of each Case of Sickness.	Stations occupied during the Year.	Years of Service in India.
						Admissions into Hospital.	Deaths.	Invalids.	Average Constantly Sick.				
													months.
INFANTRY.													yrs. mo.
2nd Bn. Roy. Fusiliers C. L. Regiment.	898	1,212	11	46	78	1349·67	12·25	51·22	86·86	31·70	23·49	Wellington (detachments at Cannanore, Calicut, and Mallopuram). 12	14 2
2nd Bn. P. A. Somersetshire Light Infantry.	616	674	6	25	51	1094·16	9·74	40·58	82·79	30·22	27·62	Burma Field Service, 4, and Belgaum - 8	9 10
2nd Bn. Bedfordshire Regt. -	996	1,606	2	20	99	1612·45	2·01	20·08	99·40	36·28	22·50	Bellary (Wing at Fort St. George) - - 12	11 10
1st Bn. Cheshire Regiment -	108	88	1	—	3	814·81	9·26	—	27·78	10·14	12·44	Arrived at Rangoon from Egypt, 27th Nov. 1887 (detachment at Port Blair).	0 3
2nd Bn. Royal Scots Fusiliers -	830	1,089	10	16	68	1312·05	12·05	19·28	81·93	29·90	22·79	Rangoon, Port Blair, and Allanmyo, 11; to Dagshai (Bengal Presidency, 1st Dec. 1887).	5 11
2nd Bn. South Wales Borderers.	704	1,224	6	23	79	1738·64	8·52	32·67	112·22	40·96	23·56	Thayetmyo and Wing at Toungoo - - 12	7 4
1st Bn. Hampshire Regiment	850	847	6	9	48	996·47	7·06	10·59	56·47	20·61	20·68	Secunderabad - - - - - 12	1 11
2nd „ „ „	529	647	10	7	42	1223·06	18·90	13·23	79·39	28·98	23·69	Burma Field Service, 4, and Secunderabad, 8	15 0
2nd Bn. Oxfordshire Light Infantry.	1,146	950	10	10	56	828·97	8·73	8·73	48·87	17·84	21·52	Bangalore (one Company at Belgaum) - 12	1 9
2nd Bn. Middlesex Regiment	919	1,251	12	24	63	1361·26	13·06	26·12	68·55	25·02	18·38	Secunderabad, 3, and Kamptee and Seetabuldee. 12	7 4
2nd Bn. Royal Munster Fusiliers	64	76	3	5	5	1187·50	46·87	78·13	78·13	28·52	24·01	Burma Field Service - - - - 12	3 9
1st Bn. Rifle Brigade - -	79	94	6	5	9	1189·87	75·95	63·29	113·92	41·58	34·95	Do. - - - - 12	7 3
Details of Infantry - -	109	42	4	—	3	385·32	36·70	—	27·52	10·05	26·07		
Total - -	7,848	9,800	87	190	604	1248·73	11·09	24·21	76·96	28·09	22·50		

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Corps.	Average Annual Strength.	Admitted into Hospital.	Deaths in the Command.	Invalided.	Average Number Constantly Sick.	Ratio per 1,000 of Strength.				Average Daily Sick.	Average Time to each Soldier.	Average Duration of each Case of Sickness.	Stations occupied during the Year.	Years of Service in India.
						Admissions into Hospital.	Deaths.	Invalids.	Average Constantly Sick.					
CONVALESCENT DEPÔTS.														
Poonamallee - - -	183	510	14	79	46	2786·89	76·50	431·69	251·87	91·75	33·29			
Wellington - - -	240	459	7	19	28	1787·50	29·17	79·17	116·67	42·58	23·82			
Total - -	423	969	21	98	74	2219·86	49·65	231·08	174·94	63·85	28·76			
Garrison, Staff, and Departments.	182	107	3	1	8	587·91	16·48	5·49	43·96	16·04	27·29			
Grand Total - -	11,738	14,574	153	384	906	1241·61	13·05	31·01	77·19	28·17	22·69			

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ABSTRACT No. XLII.—TABLE, taken from the REPORT of the PRINCIPAL MEDICAL OFFICER, showing the ADMISSIONS, MORTALITY, and INVALIDING in each CORPS serving in the BOMBAY COMMAND in the Year 1887.

Corps.	Completed Years of Service in Command.	Average Annual Strength.	Admitted into Hospital.	Died.	Invalids sent Home.	Average Number Constantly Sick.	Ratio per 1,000 of Strength.				Sick each		Stations occupied during the Year.
							Admitted.	Died.	Invalided.	Constantly Sick.	Average Time to Soldier.	Average Duration of each Case of Sickness.	
CAVALRY.													
7th Dragoon Guards -	3	592	618	10	20	38·90	1043·9	16·89	33·78	65·71	23·98	22·98	Mhow, 12 months.
ROYAL ARTILLERY.													
G Battery, B Brigade R.H.A.	2	157	147	2	4	9·97	936·3	12·74	25·48	63·50	23·18	24·71	Mhow, 12 months.
I „ B „ „ -	2	151	191	—	10	12·72	1264·9	—	66·22	84·24	30·08	23·78	Kirkee, 12 months.
E „ 1 „ R.A. -	4	126	238	5	7	12·73	1888·9	39·68	55·56	101·03	36·88	19·52	Neemuch, 10½ months.
F „ 1 „ „ -	4	127	130	1	7	10·36	1023·6	7·87	55·12	81·57	29·77	29·77	Ahmednagar, 10 months.
T „ 1 „ „ -	3	155	285	2	2	13·52	1838·7	12·90	12·90	87·23	31·84	17·32	Karachi, ½ month; Hyderabad, 11 months.
A „ 2 „ „ -	—	116	243	—	9	11·54	2094·8	—	77·59	99·48	36·31	17·33	Aden, 9½ months.
B „ 2 „ „ -	13	107	149	3	—	6·33	1392·5	28·04	—	59·16	21·59	15·51	Nasirabad, 9 months.
C „ 2 „ „ -	12	114	121	—	2	7·98	1061·4	—	17·54	70·00	75·55	24·07	Karachi, 9½ months.
D „ 2 „ „ -	13	143	336	2	9	11·56	2349·7	13·99	62·94	80·84	29·51	12·56	Deesa, 12 months.
E „ 2 „ „ -	13	153	244	1	9	14·81	1593·2	6·47	58·82	96·80	35·33	22·16	Kirkee, 10½ months; Ahmedabad, 1½ months.
F „ 2 „ „ -	13	158	197	3	10	11·51	1246·9	18·99	63·29	72·86	26·59	21·33	Karachi, 1 month; Hyderabad, 1 month; and Kirkee, 9½ months.

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Corps.	Completed Years of Service in Command.	Average Annual Strength.	Admitted into Hospital.	Died.	Invalids sent Home.	Average Number Constantly Sick.	Ratio per 1,000 of Strength.				Sick to each Soldier.	Average Duration of each Case of Sickness.	Stations occupied during the Year.
							Admitted.	Died.	Invalided.	Constantly Sick.			
O Battery, 2 Brigade R.A. -	2 mos.	26	22	—	—	·65	84·6	—	—	25·00	9·12	10·78	Kirkee, 2 months.
F „ 3 „ „ -	2 mos.	17	25	—	—	·86	1470·6	—	—	50·59	18·47	12·56	Kirkee, 2 months.
G „ 3 „ „ -	2	141	298	5	3	15·60	2113·5	35·46	21·28	110·64	40·38	19·11	Neemuch, 12 months.
J „ 4 „ „ -	2 mos.	25	25	—	—	·08	1000·0	—	—	27·20	9·93	9·95	Kirkee, 2 months.
R „ 4 „ „ -	1	151	138	2	5	7·04	913·9	13·38	33·11	46·62	17·02	18·62	Kirkee, 11 months; Nasirabad, 1 month.
5 Batt., 1 Brgd., R.A.. Lanc. Dn.	12	28	40	—	—	1·78	1428·6	—	—	63·57	23·20	16·24	Aden, 3 months.
8 „ 1 „ Lond. Dn.	12	69	135	—	3	5·68	1956·5	—	43·48	82·32	30·05	15·36	Colaba, 5 months; Aden, 3 months.
1 „ 1 „ West. Dn.	2	105	112	1	5	6·44	1066·7	9·52	47·62	61·33	22·39	20·99	Aden, 9 months.
5 „ 1 „ N.Ir. Dn.	11	114	138	1	10	7·71	1210·6	8·77	87·72	67·63	24·69	20·39	Colaba, 12 months.
4 „ 1 „ S.Ir. Dn.	2 mos.	18	22	1	—	·74	1222·2	55·56	—	41·11	15·01	12·28	Karachi, 2½ months.
8 „ 1 „ C.P. Dn.	6	99	98	2	1	4·63	989·9	20·20	10·10	46·77	17·07	17·24	Mhow, 12 months.
1 „ 1 „ Scot. Dn.	2	76	103	2	11	5·27	1355·3	26·32	144·74	69·34	25·31	18·68	Aden, 9 months.
2 „ 1 „ E. Dn.	1	50	35	—	4	1·72	700·0	—	80·00	34·40	12·56	17·94	Colaba, 2 months.
Total - -	—	2,426	3,472	33	111	181·83	1425·4	13·55	45·57	74·65	27·35	19·11	
Royal Engineers - -	—	15	7	—	1	·27	466·7	—	66·67	18·00	6·57	14·08	Kirkee, 12 months.

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Corps.	Completed Years of Service in Command.	Average Annual Strength.	Admitted into Hospital.	Died.	Invalids sent Home.	Average Number Constantly Sick.	Ratio per 1,000 of Strength.				Sick Time to each Soldier.	Average Duration of each Case of Sickness.	Stations occupied during the Year.
							Admitted.	Died.	Invalided.	Constantly Sick.			
INFANTRY.													
2nd East Yorkshire Regiment	13	666	897	5	23	38·04	1346·8	7·51	34·53	57·12	20·85	15·48	Colaba, 12 months.
2nd Lancashire Fusiliers -	6	857	1,732	27	14	80·18	2021·0	31·51	16·34	93·56	34·15	16·60	Nasirabad, 12 months.
1st Worcestershire Regiment	9	188	209	2	8	18·71	1111·7	10·64	42·55	99·52	36·33	35·07	Karachi, 2 months.
1st Loyal N. Lanc. Regiment	4	833	1,095	16	15	52·98	1314·5	19·21	18·01	63·60	23·21	17·66	Mhow, 12 months.
2nd Gloucestershire Regiment	8	913	1,191	14	24	64·81	1304·5	15·33	26·29	70·99	25·91	19·86	Ahmednagar, 12 months.
2nd North Stafford Regiment	7	622	597	7	5	14·40	959·8	11·25	8·04	23·15	8·45	8·80	Aden, 12 months.
2nd Royal Dublin Fusiliers -	21 mos.	941	809	5	25	66·73	859·7	5·31	26·57	70·91	25·88	30·11	Poona, 12 months.
2nd King's Own Yorkshire Light Infantry.	9 mos.	853	1,077	7	5	49·88	1262·6	8·21	5·86	58·48	21·34	16·90	Karachi, 10 months.
2nd Durham Light Infantry	11 mos.	785	1,057	6	8	64·66	1346·5	7·64	10·19	82·37	30·07	22·33	Poona, 11½ months.
Total - -	—	6,658	8,664	89	127	450·39	1301·3	13·37	19·07	67·65	24·69	18·97	
DEPÔTS, &c.													
Colaba Depôt - -	—	73	119	4	8	9·70	1630·1	54·79	109·59	132·88	48·50	29·76	Colaba, 12 months.
Deolali Depôt - -	—	543	421	4	4	14·89	775·3	7·37	7·37	27·24	10·01	12·91	Deolali, 12 months.
Convalescents - -	—	96	287	3	—	12·48	2989·6	31·25	—	130·00	47·45	15·88	Mount Aboo, 12 months.

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Corps.	Completed Years of Service in Command.	Average Annual Strength.	Admitted into Hospital.	Died.	Invalids sent Home.	Average Number Constantly Sick.	Ratio per 1,000 of Strength.				Sick each Time to Soldier.	Average Duration of each Case of Sickness.	Stations occupied during the Year.
							Admitted.	Died.	Invalided.	Constantly Sick.			
DEPÔTS, &c.—*continued.*													
Convalescents - -	—	112	221	1	24	13·07	1973·2	8·93	214·29	116·70	42·59	21·59	Purandhar, 12 months.
„ - -	—	13	13	—	—	·71	1000·0	—	—	54·62	19·93	19·93	Khandalla, 2 months.
„ - -	—	33	113	1	—	3·79	3424·2	20·30	—	114·85	38·89	11·36	Taragarh, 7 months.
Garrison Staff and Departments.	—	112	41	1	3	1·52	366·07	8·93	26·79	13·57	4·95	13·53	
Various Corps - -	—	131	170	—	14	11·61	1297·7	—	106·87	88·63	32·35	24·93	
Troops on the March -	—	292	122	—	—	1·49	417·8	—	—	5·10	1·86	4·46	
Military Prison, &c. - -	—	181	103	2	5	7·28	569·1	11·05	27·62	40·22	14·68	25·80	Poona, 12 months.
Rest Camp - - -	—	2	2	—	—	·01	1000·0	—	—	5·00	1·82	1·82	Khundwa, 12 months.
Total - - -	—	1,592	1,612	16	58	76·55	1012·6	10·05	36·43	48·08	17·55	17·33	
Grand Total -	—	11,283	14,373	148	317	747·94	1273·9	13·12	28·10	66·30	24·19	18·99	

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APPENDIX No. I.

REPORT ON THE PROGRESS OF HYGIENE FOR THE YEAR 1888.

By Surgeon-Major J. Lane Notter, B.A., M.D., M.Ch., Medical Staff, Professor of Military Hygiene at the Army Medical School, Netley.

For many years the progress of hygiene was reviewed each year in the Army Medical Department Reports.

In the last one furnished by the late Professor F. de Chaumont, M.D., F.R.S., he carried down the history of this science to the year 1882.

The irreparable loss which his death has inflicted, not only on the army but on the State, has been widely acknowledged. To the nature and extent of his study of hygiene, his many reports, lectures, and addresses bear witness. The most conspicuous contributions made by him to sanitary science are to be found in his ever-fresh editions of that work on hygiene which bears the name of "Parkes," and the seventh edition remains a monument of painstaking labour completed under the saddest circumstances.

On account of the very great pressure of work in our laboratory, and having only arrived during the latter part of last year from India, I cannot do more than give a somewhat meagre report this year. I trust next year to be able to place on record a more extensive prècis of the work done in sanitary science.

Legislation.

The most prominent enactment passed by Parliament this year was "The Local Government Act."

The clauses in this Act provide for the appointment of medical officers of health by county councils, and for the qualifications of medical officers of health for districts with populations exceeding 50,000 inhabitants. This Act also provides that after January 1st, 1892, every medical officer of health must (with certain specified exceptions) produce before appointment a diploma in sanitary science or State medicine.

Literature.

A monthly journal, entitled "Public Health," being the journal of the Society of Medical Officers of Health, was brought out in May last. It is edited by A. Wynter Blyth, M.R.C.S., and is a valuable aid to medical officers and others interested in this subject.

The Transactions of the Sanitary Institute for 1887 contain an address on "Sanitary Science and Preventive Medicine" by the late Professor de Chaumont, which is especially interesting as it is one of the last he was able to give. With reference to the examination of potable waters, Dr. de Chaumont urged the necessity of supplementing the chemical analyses by a microscopic examination in every case, in the hopes of obtaining in that direction information which chemistry seemed incapable of furnishing.

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The same volume contains an excellent article "on Milk and Disease" by Dr. Louis Parkes. His remarks bear on the question of the transmission of disease of the cow through its milk secretion to human beings, and he summarises briefly our knowledge of the facts and inferences to be drawn from them in this connexion.

The third medical volume of the medical and surgical history of the War of the Rebellion has just appeared (December 1888).

It is beautifully illustrated with chromo-lithographic drawings and photographs. This volume contains the medical statistics of the war and chapters on camp fevers, malarial fevers, continued fevers. On the diseases allied to these fevers. On eruptive fevers, scurvy, and non-miasmatic diseases; also one on general hospitals. The causation of malarial fevers is assigned to "an "emanation from certain soils, especially those that are rich in vegetable "matter, undergoing the natural process of decomposition under the "combined influence of heat and moisture." Although not proved it seems not unlikely that a certain per-centage of the malarial disease was due to the introduction of the malarial poison into the system by means of drinking water.

The experience of the war did not teach that the indiscriminate use of quinine as a prophylactic was necessary. When men were exposed in a specially dangerous locality it was recommended, provided they were only located there for a short time; but if the place was to be occupied for a longer period, then "prevention should be attempted by a judicious selection of "camp sites, and quinine reserved for remedial exhibition on manifestation "of the malarial poison in the system."

With reference to enteric fever, stress is laid on the fact that, aside from the essential miasm or infection, the "principal element in determining the "occurrence of an epidemic was, without doubt, a susceptibility to the "disease." This was demonstrated by the accessions which were associated by the advent of new and so-called unseasoned men. Those recruited in cities where typhoid is endemic were less susceptible than those raised in the country districts where the disease is relatively less frequent. For general hospitals the plan which experience proved most suitable was the pavilion plan. Each ward being a separate pavilion, with beds for 60 patients. Each patient has 1,000 cubic feet of air space. Four small rooms are at the ends of the ward, two, used as baths and for closets, at one end, and two, for attendants and medicines, at the other.

This system cannot be recommended. 60 men are far too many to have congregated in one ward, and the air space is very deficient.

Professor Brown, C.B., of the Agricultural Department, Privy Council Office, has just issued a "Report on Eruptive Diseases of the Teats and Udders of Cows in relation to Scarlet Fever in Man." It will be remembered that in 1886 Mr. W. H. Power reported to the Local Government Board on certain observed relations between scarlet fever in London and milk supplied from a dairy farm at Hendon, in which it was regarded as demonstrated that the prevalence of scarlet fever had been dependent on the use of milk from a dairy farm where the cows were suffering from a definite and communicable disease. Professor Brown, on the report of Professor Axe, who only recently investigated this same epidemic, questions Mr. Power's conclusions.

This report has just been reviewed in the "Practitioner" (March 1889), and the reviewer clearly shows that no additional evidence is forthcoming, and that Professor Brown's report cannot be accepted as throwing any further light on the nature of this disease, every detail of which was so ably dealt with by Mr. Power.

The Parkes' Memorial prize essay "On the Prevention of Disease in Tropical and Sub-tropical Climates," by A. Duncan, M.D., F.R.C.S., has recently been published.

This is an excellent work, and really is a marvel of successful compression.

Dr. Duncan believes that a vast amount of disease usually ascribed to climate can be traced to defective hygiene, and points out the necessity there is for a knowledge of the manner in which this science should be applied to the preservation of the health of armies. This is a most comprehensive work and should prove invaluable to an army surgeon.

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The Ninth Report of the International Medical Congress, edited by John B. Hamilton, M.D., Secretary General, has just come to hand. The fourth volume contains the reports on public health and international hygiene.

Among the papers read at the meeting of the Congress is one "On the Nature of Malaria and Prophylaxis in Malarious Regions," by Tommasi-Crudelli, M.D. He states that the cause or entity of malarial fever is a bacillus, diffused on the surface of the earth, capable of retaining its vitality for a long time, and of vegetating in soils, provided they are moderately damp in the hot season, and in immediate contact with the atmospheric air. This discovery is confirmed by the researches of Professor F. Cohn and others. The production of malaria is not necessarily connected with the existence of marshes or stagnant waters. Tommasi-Crudelli prefers the system of filling up low lands with sand or earth to mechanical drainage, and attributes the improvement in the health of Rome to the paving of the streets, which is being extended to all parts of the city.

As a prophylaxis in malarious countries, Crudelli strongly urges the continued use of small doses of arsenic, and the daily use of a decoction of lemons, made with the whole fruit and taken on an empty stomach. In the discussion which followed on this paper instances were given in which potable water, impregnated with malarial poison, appeared to be the cause of this disease.

At the Congress Dr. Domingos Freire read a paper on yellow fever. The cause of this disease is due to the presence of a microbe which secretes an alkaloid, and this resembles in its action a violent poison. During an epidemic he demonstrated by inoculation experiments this specific "Cryptococcus."

He has entered fully into the nature of this microbe, its evolution and cultivation; also the means he employs for attenuating the virus before the inoculation of his patients; and he gives instances of the practical benefit derived from such a course of treatment. The Section passed a resolution to the effect "that the facts observed afford reasonable assurance of pro-
"tection, and recommends thorough investigation of inoculation against yellow
"fever."

The "Report on Sanitary Measures in India 1886–87, together with miscellaneous information up to June 1888," has been issued. The total average strength of the British forces serving in India during the year 1886 was 61,015. The admissions per 1,000 of average strength were 1,514, the deaths 15·18, and the invaliding 41.

Of all diseases enteric fever continued to be the most fatal. The Surgeon-General for Bombay has stated this matter very plainly in his Report; he says, that "there can be no question, however, from the experience of the past
"few years, that the short service system, which necessarily introduces in
"India annually such large numbers of young soldiers, has much to answer
"for as regards the increase of enteric fever, especially a disease of the
"young."

The progressive increase in venereal diseases continued in 1886, being in the proportion of 389 per 1,000 against 343 in 1885. It will be remembered that the Lock hospitals were closed by order of the Government of India from the 31st December 1884.

The Report also contains a very able paper by Dr. W. J. Simpson, Medical Officer of Health at Calcutta. In it he gives the statistics of cholera in Calcutta for the 20 years, and shows that during the last 10 years there is a decided increase in the mortality from this disease.

The three factors which, he states, act simultaneously in producing this result are—

1. A scarcity of water.
2. A system of underground drainage, which has been extended into the narrow streets, without sufficient provision for flushing or cleansing.
3. Insufficient conservancy and nuisance removal.

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Brigade-Surgeon J. B. Hamilton, M.D., has just published a small work on "Enteric Fever in India."

Dr. Hamilton has had large experience, and gives many valuable suggestions within a small compass.

Special Points of Hygiene.

1. *Water.*—A table of analyses of water sent to the laboratory at Netley is appended. It is on the same plan as was adopted in former years, but differs in this important particular, that a column is added giving the results of cultivations in nutrient gelatine, and a special and detailed Report on each sample is appended, drawn up by Surgeon A. M. Davies, M.S., Assistant Professor of Hygiene.

This is, I believe, the first time any systematic attempt has been made to test the quality of potable waters, by subjecting them to plate cultivation in nutrient gelatine, and noting carefully the organisms that grow.

The results are all the more valuable, as a chemical and microscopic examination of the sediment of the waters was made at the same time, and all the experiments have been carried out with great care. Our observations are too few yet to admit of any conclusions being drawn, but the results, so far, are extremely interesting, and we hope in the next Report to be able to give a good account of our work in this direction.

By accumulating facts, some conclusions may be ultimately arrived at.

In all, 89 samples were examined, but only 62 were subjected to cultivation experiments.

Of the 89 samples the following is the classification :—

"Fit for use" - - - - - -	36
"Usable or requiring filtration before use" - -	26
"Unfit for use on account of organic impurity and of excessive hardness and chlorides" - - -	27
Total - - -	89

The following table gives the means of the analysis (in parts per 100,000).

Table of Drinking Water according to Purity.

—	Class of Waters.	Chlorine.	Oxygen required for organic matter.	Ammonia.		Nitric Acid.	Hardness.	
				Free.	Albuminoid.		Total.	Fixed.
36	Fit for use - - -	3·9868	0·0687	0·0028	0·0063	0·4488	12·7076	6·7
26	Usable or require filtration	6·0384	0·0664	0·0121	0·0101	3·0753	18·1538	9·2
27	Unfit on account of organic impurity and of excessive hardness and chlorides.	6·1481	0·0620	0·0452	0·0167	3·9100	30·3333	12·7

In the first group, "Fit for use," the chlorine and hardness are high, the cause being the somewhat large amount of both these in the Portland and Isle of Wight waters, owing to the proximity of the wells to the sea. In the second group, "Usable or requiring filtration," the chlorine is largely in excess. This is owing to samples being taken from the deep artesian wells at Shoeburyness during the process of boring. These wells are 840 feet deep and the water is exceedingly soft. The pressure of an excess of chlorides is probably due to the strata the borings reached.

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No. of Sample.	Source.	Physical Characters.	Microscopic Characters of the Sediment.	Quantitative Analyses in parts per 100,000							Cultivation Experiments for Bacteria, &c.	Remarks.
				Chlorine.	Oxygen required for Organic Matter.	Free Ammonia.	Albuminoid Ammonia.	Nitric Acid.	Hardness. Total.	Hardness. Fixed.		
1	Grangegorman. — Subsoil drainage, No. 1 pit.	Clear, colourless; some sediment; good lustre; no smell.	Vegetable débris, carbonate of lime, large numbers of infusoria.	2·2000	0·0480	0·0403	0·0150	0·1519	33·5	19·0	On tenth day considerable liquefaction of nearly all the colonies. Colour, yellow.	Subsoil fairly clean.
2	Dungannon. — Water Company's reservoir (on peaty soil).	Yellow, not turbid; some sediment; no taste or smell.	Vegetable débris, and a few infusoria; some fragments of deal and cotton fibre.	1·3000	0·3600	None	0·0230	0·3818	3·5	3·0	On ninth day only two small liquefying colonies and five moulds.	Very good. Organic matter of peaty origin.
3	Royal Barracks, Dublin.—Tap at S.W. of Palatine Square.	Slightly yellow, not turbid; small sediment; good lustre and taste.	Mineral grit, minute infusoria, and algæ; bacteria.	1·4000	0·1120	0·0055	0·0105	0·8399	3·5	3·5	These samples have been subjected to cultivation experiments in nutrient gelatine; the result tending to show that though micro-organisms are present, they are not in such numbers or of such a character as to render the water unwholesome for drinking.	Fit for drinking purposes.
4	Royal Barracks, Dublin. — Tap over sink in "F" house.	Ditto.	A very small amount of vegetable débris; a few infusoria.	1·4000	0·1080	0·0055	0·0105	0·8089	3·5	3·5	Same as Sample No. 3.	Ditto.
5	Sheffield.—Tap in hospital kitchen.	Slightly yellow, not turbid; some sediment; lustre fair; no taste or smell.	Vegetable débris; a few algæ and infusoria, and some cotton fibres.	1·2000	0·0800	0·0201	0·0048	0·4427	5·5	4·0	On tenth day several white non-liquefying colonies; no liquefaction.	Sent, as several cases of lead poisoning had occurred in Sheffield. Not a trace of lead was found in this sample.

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No. of Sample.	Source.	Physical Characters.	Microscopic Characters of the Sediment.	Quantitative Analyses in parts per 100,000.							Cultivation Experiments for Bacteria, &c.	Remarks.
				Chlorine.	Oxygen required for Organic Matter.	Free Ammonia.	Albuminoid Ammonia.	Nitric Acid.	Hardness. Total.	Hardness. Fixed.		
6	Sheffield.—Tap in passage; married quarters.	Very slightly yellow, not turbid; small sediment; lustre fair; no taste or smell.	Vegetable débris, some algæ, infusoria, and some cotton fibres.	1·2000	0·0920	0·0201	0·0048	0·4427	5·5	4·0	Same as Sample No. 5.	Sent, as several cases of lead poisoning had occurred in Sheffield. Not a trace of lead was found in this sample.
7	Belfast Militia Depôt. — Waterworks Company.	Yellow, not turbid; small sediment; good lustre and taste.	A large amount of mycelium growth; several woollen fibres (red and blue); chips of deal.	2·1000	0·1920	0·0025	0·0025	0·4518	10·0	9·0	On tenth day three white non-liquefying colonies; a few very minute ones; no liquefaction.	Fit for drinking. N.B.— The microscopic examination shows evidence of slight contamination by dust, which should be guarded against.
8	Parkhurst, Albany Barracks.— (Unfiltered.)	Whitish, not turbid; some sediment; no lustre, taste, or smell.	Very small sediment; vegetable débris; some algæ and sand.	4·8000	0·0800	None	0·0160	0·4668	6·5	6·5	On eighth day complete liquefaction of gelatine.	Fit for drinking.
9	Parkhurst, Albany Barracks.— (Filtered.)	Ditto	Very small sediment; some algæ; a few minute infusoria.	4·8000	0·0880	None	0·0160	0·4668	6·5	6·5	On tenth day only one colony and one mould.	Ditto.
10	Sandown Barracks. —Isle of Wight Waterworks Company, high level.	Slightly yellow, not turbid, and little sediment; good lustre and taste; no smell.	Very small sediment; a little sand; a few diatoms; and a little vegetable débris.	4·2000	0·0560	None	0·0120	0·7612	11·5	9·0	On tenth day numerous colonies with a tendency to complete liquefaction; some liquefying.	Ditto.

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No. of Sample.	Source.	Physical Characters.	Microscopic Characters of the Sediment.	Quantitative Analyses in parts per 100,000.							Cultivation Experiments for Bacteria, &c.	Remarks.
				Chlorine.	Oxygen required for Organic Matter.	Free Ammonia.	Albuminoid Ammonia.	Nitric Acid.	Hardness. Total.	Hardness. Fixed.		
11	Sandown Barracks. — Waterworks Company. From cookhouse, filtered.	Same as No. 10 -	Very small sediment, which consists of sand, diatoms, algæ, and a few infusoria.	4·2000	0·0600	None	0·0120	1·0311	10·5	8·0	After ten days no liquefaction, and only one small colony.	Fit for drinking.
12	Sandown Barracks. — Waterworks Company. Hospital, filtered.	Same as No. 11 -	Same as No. 11 -	4·2000	0·0600	None	0·0120	0·7612	10·0	6·5	On tenth day only one small colony; no liquefaction.	Ditto.
13	Golden Hill Fort. —Well, 96 feet deep. Source, spring.	No colour, not turbid; some sediment; good lustre and taste; no smell.	Very small; a little vegetable débris; a few infusoria, and a few cotton fibres.	12·1000	0·0280	None	0·0024	0·1458	25·0	9·0	On tenth day numerous small and minute colonies, and one mould.	Fit for drinking. The excess of chlorine is due probably to proximity to the sea.
14	Golden Hill Fort. —Well in field, depth, 60 feet.	Same as No. 12. -	Sediment, large mineral matter, vegetable débris, and a few infusoria.	12·000	0·0240	0·0052	0·0049	0·1269	25·0	7·5	On sixteenth day extensive liquefaction of yellowish colonies; several light yellow small colonies; several moulds.	Ditto.
15	Golden Hill Fort. —Well in Warden Point Battery, 16 feet deep.	Yellow, not turbid some sediment; fair lustre; no taste or smell.	Sediment small; a little vegetable débris; some infusoria and zoogloea growth; a few cotton fibres.	7·0000	0·0480	0·0026	0·0049	0·0885	10·0	5·5	On thirteenth day numerous colonies, all white; some liquefaction; others flat and crenate.	Fit for drinking.

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No. of Sample.	Source.	Physical Characters.	Microscopic Characters of the Sediment.	Quantitative Analyses in parts per 100,000.							Cultivation Experiments for Bacteria, &c.	Remarks.
				Chlorine.	Oxygen required for Organic Matter.	Free Ammonia.	Albuminoid Ammonia.	Nitric Acid.	Hardness. Total.	Hardness. Fixed.		
16	Grangegorman.—Subsoil water, 6 feet 6 inches below surface.	Slightly yellow, clear; small sediment; good lustre and taste; no smell.	Amorphous mineral matter, with a little vegetable débris; some algæ and infusoria; cotton fibres.	1·9000	0·0520	0·0208	0·0204	4·6499	37·5	26·5	On tenth day several moulds green in centre, also white ones; two small colonies; one red colony; no liquefaction.	Fairly good subsoil. Water unfit for drinking.
17	Dungannon Fort.—Well, 52 feet deep.	Clear and colourless; some sediment; good lustre; no taste or smell.	Amorphous mineral matter, vegetable débris, and a few infusoria.	3·0000	0·0480	0·0104	0·0177	2·3226	6·5	6·0	For three weeks no growth; on twenty-fourth day slight liquefaction and some moulds.	Usable after careful filtration.
18	Fort George, N.B.—Well on common, 33 feet deep.	Yellow, very turbid; no smell; small sediment; no lustre or taste.	Sand and very finely divided clay.	3·7000	0·1000	0·0520	0·0420	1·7067	4·5	4·5	None - - - -	Unfit for drinking purposes.
19	St. Helena.—Spring, which supplies Ladder Hill Barracks.	Clear, very small sediment; good lustre and taste; no smell.	One or two hairs, and some vegetable cells.	4·2000	0·0200	0·0052	None	0·3894	5·0	4·0	On sixth day three white moulds	A pure water, and fit for drinking purposes.
20	St. Helena.—Tap on tank, Ladder Hill Barracks.	Very slightly turbid; some sediment; good lustre, taste, and smell.	Vegetable débris, sooglæa growth, and scales from wings of insects.	5·0000	0·0360	None	0·0040	0·5955	5·5	5·0	Ditto - - - -	The water is pure, dust gains admission to the tank.
21	Fort George, N.B.—Source, well.	Yellowish, slight turbidity; some sediment; no lustre, taste, or smell.	Sand - -	3·6000	0·0320	None	0·0044	0·6126	4·	3·0	None - - - -	Fit for drinking.

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No. of Sample	Source.	Physical Characters.	Microscopic Characters of the Sediment.	Quantitative Analyses in parts per 100,000.							Cultivation Experiments for Bacteria, &c.	Remarks.
				Chlorine.	Oxygen required for Organic Matter.	Free Ammonia.	Albuminoid Ammonia.	Nitric Acid.	Hardness. Total.	Hardness. Fixed.		
22	Blandford.-Crown Probate Office. Well, 51 feet deep.	Clear; colourless; good lustre; no taste or smell.	Very small, and consists of a little mycelium growth.	5·2000	0·0200	None	None	5·1058	20·0	7·0	None	Usable. The chlorine and nitric acid are very large.
23	Christchurch. — Well in front of hospital. Depth unknown	Slightly yellow, not turbid; some sediment; good lustre; no taste or smell.	Very small, a little sand; amorphous matter, and a few infusoria.	5·8000	0·1160	0·0033	0·0150	10·8563	9·0	8·0	None	The organic matter is in excess, and the nitrates are in very great excess. Water *very suspicious*, and should not be used without careful filtration.
24	Christchurch. — Tank supplied by well, 20 feet deep and 10 yards from river bank.	Slightly yellow, not turbid; some sediment; good lustre and taste; no smell.	Amorphous matter; a few infusoria; sand; one rotifer.	3·3000	0·0600	0·0107	0·0075	1·2330	4·5	3·5	None	This water contains a slight excess of organic matter, probably due to filtering action of the stratum of sand; it is a usable water.
25	Kildare Lock Hospital. — Rain water tank.	Slightly yellow, not turbid; fair lustre; no taste or smell.	Sand and clay with vegetable débris; algæ; a few infusoria and dyed cotton fibre.	0·6000	0·0520	None	0·0052	0·2042	9·0	6·5	None	Fit for drinking.

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No. of Sample.	Source.	Physical Characters.	Microscopic Characters of the Sediment.	Quantitative Analyses in parts per 100,000.							Cultivation Experiments for Bacteria, &c.	Remarks.
				Chlorine.	Oxygen required for Organic Matter.	Free Ammonia.	Albuminoid Ammonia.	Nitric Acid.	Hardness. Total.	Hardness. Fixed.		
26	Dublin, Lusk Prison. — Well, 25 feet deep.	Yellow, not turbid; some sediment; fair lustre; good taste; no smell; taste good.	Mycelium growth in large quantity; numerous infusoria; bacteria in large numbers; micrococcus forms.	11·8000	0·1120	None	0·0120	0·9026	26·5	19·0	On sixth day several moulds, green and white, one white mould liquefying in centre; one large circular white liquefying colony.	Impure.
27	Dublin, Lusk Prison.—At Cottage "E," 25 feet deep.	Clear, no colour; small sediment; good lustre and taste; no smell.	Vegetable débris; a few infusoria; some mycelium; fragments of deal.	3·4000	0·0480	None	0·0080	0·2352	21·5	9·0	On sixth day several moulds, green and white; a few flat non-liquefying colonies; several lemon-yellow colonies.	Fit for drinking, but the well should be protected from dust.
28	Aldershot. — Tap supplying Government House.	Clear, colourless; slight sediment; good lustre; no taste or smell.	Vegetable débris, and a few minute infusoria.	1·5000	0·0320	None	0·0048	1·5025	14·5	4·0	Very extensive liquefaction on seventh day; on previous days several minute colonies.	Fit for drinking.
29	Dublin, Lusk Prison.—"From Quarry."	Clear, not turbid; some sediment; good lustre and taste; no smell.	Sand and vegetable débris; numerous diatoms and infusoria.	3·7000	0·0560	0·0072	0·0080	0·7943	19·0	12·5	None - - - -	Usable.
30	Dublin, Lusk Prison. — Entrance lodge well, 25 feet deep.	Slightly yellow, clear; some sediment; fair lustre; smell and taste good.	Same as No. 28 -	6·3000	0·0520	None	0·0048	0·4959	25·1	11·5	None - - - -	Ditto.
31	Camden Fort.—Well supplying tank, filtered.	Yellow, not turbid; some sediment; fair lustre; earthy taste; no smell.	Vegetable débris, and a few infusoria.	3·8000	0·1040	None	0·0160	0·7804	8·0	7·0	None - - - -	Usable after filtration.

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No. of Sample.	Source.	Physical Characters.	Microscopic Characters of the Sediment.	Quantitative Analyses in parts per 100,000.							Cultivation Experiments for Bacteria, &c.	Remarks.
				Chlorine.	Oxygen required for Organic Matter.	Free Ammonia.	Albuminoid Ammonia.	Nitric Acid.	Hardness. Total.	Hardness. Fixed.		
32	Curragh Camp.—Well, 46 feet deep.	Whiteish, not turbid; large sediment; fair lustre; good taste; no smell.	Particles of clay and fine sand; vegetable débris; a few infusoria and diatoms.	2·5000	0·0320	0·2976	0·0068	4·8921	24·0	10·0	None - - - -	Unfit for drinking purposes.
33	Dublin, Lusk Prison. — Well, 25 feet deep.	Clear, colourless; some sediment; good lustre; no taste or smell.	Vegetable débris and sand.	12·1000	0·0320	None	0·0126	1·9657	32·5	16·5	None - - - -	Unfit; without very careful filtration.
34	Weedon.—Well in commanding officer's garden, 16 feet deep.	Yellow, turbid; large sediment; fair lustre; no taste or smell.	Minute fragments of deal and a large quantity of vegetable débris.	2·9000	0·0800	0·0214	0·0104	2·5477	22·0	12·5	None - - - -	Suspicious; very careful filtration required. The access of dust should be prevented.
35	Weedon.—Well in Ordnance Store Yard, 26 feet deep.	Same as No. 33 -	Fragments of deal, vegetable, débris, infusoria, &c.	2·3000	0·0800	0·1072	0·0091	1·1407	21·5	9·0	None - - - -	Same as Sample 34.
36	Castlebar. — Filtered rain water from underground tanks.	Slightly yellow, not turbid; some sediment; fair lustre; good taste; no smell.	Only a little mineral grit.	3·0000	0·1160	0·0078	0·0156	2·9176	17·5	7·5	None - - - -	Suspicious; unfit without careful filtration.
37	Castlebar.—No. 2 well, 58 feet deep.	Slightly yellow, not turbid; some sediment; fair lustre; good taste.	Decayed vegetable matter. No animal life in any form.	4·9000	0·0720	None	0·0080	1·2764	30·0	10·0	None - - - -	Fixed hardness in excess; usable.

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No. of Sample.	Source.	Physical Characters.	Microscopic Characters of the Sediment.	Quantitative Analyses in parts per 100,000.							Cultivation Experiments for Bacteria, &c.	Remarks.
				Chlorine.	Oxygen required for Organic Matter.	Free Ammonia.	Albuminoid Ammonia.	Nitric Acid.	Hardness. Total.	Hardness. Fixed.		
38	Castlebar.—No. 3 well, 73 feet deep.	Same as Sample 36.	Same as Sample 36.	5·3000	0·0800	None.	0·0083	1·5975	30·0	10·0	None - - - -	Same as Sample 36.
39	Curragh Camp.—Reservoir, *not* filtered.	Slightly yellow, not turbid; very small sediment; good lustre and taste; no smell.	Vegetable débris; no animal life.	1·8000	0·0800	0·0052	0·0120	0·1648	19·0	7·5	None - - - -	Fit for drinking.
40	Curragh Camp.—Central tanks, filtered.	Clear, not turbid; very small sediment; good lustre and taste; no smell.	Same as No. 38 -	1·7000	0·0520	0·0078	0·0040	0·1612	24·5	7·5	None - - - -	Fit for use.
41	Portland. — From drinking cistern at Provost Establishment.	Greenish, turbid; large sediment; unpalatable; no lustre; no smell.	Vegetable débris; algæ; swarming with infusoria.	7·8000	0·0800	0·0600	0·0384	2·277	13·5	11·0	None - - - -	Unfit for use.
42	Portland. — From cookhouse, Provost Establishment.	Slightly yellow, not turbid; some sediment; fair lustre; good taste; no smell.	Sand; a few infusoria, chiefly oxytricha lingua.	7·3000	0·0560	0·0060	0·0144	1·9566	15·5	11·0	None - - - -	Suspicious; unfit without careful filtration.
43	Curragh, Camp.—Sumville; well, depth not stated.	Clear, colourless; very small sediment; good lustre; no taste or smell.	Very small amount of vegetable débris and grit; no animal life.	2·9000	0·0240	None	None	0·1482	26·5	9·0	None - - - -	Fit for drinking.

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No. of Sample.	Source.	Physical Characters.	Microscopic Characters of the Sediment.	Quantitative Analyses in parts per 100,000.							Cultivation Experiments for Bacteria, &c.	Remarks.
				Chlorine.	Oxygen required for Organic Matter.	Free Ammonia.	Albuminoid Ammonia.	Nitric Acid.	Hardness. Total.	Hardness. Fixed.		
44	Portland.—No. 8 cookhouse; S.E. range; citadel; filtered.	Slightly yellow and turbid; some sediment; fair lustre; good taste; no smell.	Amorphous matter, chiefly mineral, containing carbonate of lime.	7·7000	0·0440	None	0·0048	0·7505	17·5	10·5	None - - - -	Fit for drinking.
45	Portland.—No. 16 cookhouse; S.W. range; citadel; filtered.	No colour, clear; very slight sediment; fair lustre; good taste; no smell.	Amorphous matter, chiefly mineral; some sand.	7·7000	0·0360	None	0·0048	0·6101	18·0	11·0	None - - - -	Ditto.
46	Portland.—Pump near R.E. staff quarters.	Clear and colourless; very small sediment; fair lustre; good taste; no smell.	Vegetable débris and amorphous matter; particles of sand and a few cotton fibres.	7·7000	0·0000	None	0·0048	0·6564	17·5	9·5	None - - - -	Ditto.
47	Portland.—Main supply.	Yellowish; turbid; some sediment; lustre dull.	Amorphous matter, chiefly mineral; carbonate of lime; cotton fibres.	7·8000	0·0480	None	0·0072	0·8599	16·0	11·5	On tenth day numerous circular non-liquefying colonies; three white liquefying colonies; two white moulds.	Ditto.
48	Newbridge.—Well in front of "N" house, 28 feet 7 inches deep.	Clear and colourless; sediment large; lustre and taste good; no smell.	Mineral grit and amorphous matter; decaying vegetable fibre; living forms, kerona, halteria, oxytricha, bacteria.	3·9000	0·0360	0·0195	0·0114	2·6696	32·0	12·5	Several moulds; one yellow liquefying colony. Several rose-coloured colonies.	Unfit for drinking.

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No. of Sample.	Source.	Physical Characters.	Microscopic Characters of the Sediment.	Quantitative Analyses in parts per 100,000,							Cultivation Experiments for Bacteria, &c.	Remarks.
				Chlorine.	Oxygen required for Organic Matter.	Free Ammonia.	Albuminoid Ammonia.	Nitric Acid.	Hardness. Total.	Hardness. Fixed.		
49	Newbridge.—Well in front of "Q" house, 33 feet deep.	Slightly yellow, not turbid; large sediment; dull lustre; taste good; smell none.	Mineral grit; grass; a few minute infusoria; mycelium and spores of fungi.	2·7000	0·0600	0·0093	0·0093	2·8527	22·0	9·0	On tenth day several circular non-liquefying yellow colonies and one or two white dots.	Usable after careful filtration.
50	Newbridge.—Well in front of canteen, 38 feet 8 inches deep.	Clear and Colourless; lustre and taste fair; smell none; sediment large.	Mineral grit; spores of fungi; decaying vegetable matter; living forms, kerona, stylonychia, halteria, oxytricha.	5·9000	0·0280	0·0072	0·0048	2·6572	32·0	18·0	On tenth day several yellow colonies, all non-liquefying; one or two white dots.	Unfit for drinking.
51	Crotanstown. — Pump at back door; depth not stated.	Clear and colourless; very small sediment; lustre good; taste good; no smell.	Mineral grit, jute, and cotton fibre; very minute infusoria and minute amæbæ; spores in large numbers.	9·6000	0·0400	0·0061	0·0179	5·9296	47·5	8·0	On fifth day entire liquefaction of plate.	Ditto.
52	Crotanstown. — Pump in yard; depth not stated.	Clear and colourless; very small sediment; lustre and taste good; smell none.	Mineral grit, jute, and cotton fibre; decayed grass, spores, and mycelium of fungi; no animal life.	9·6000	0·0400	0·0061	0·0179	5·9296	47·5	8·0	On fifth day considerable yellow liquefaction of plate.	Ditto.

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No. of Sample.	Source.	Physical Characters.	Microscopic Characters of the Sediment.	Quantitative Analyses in parts per 100,000.							Cultivation Experiments for Bacteria, &c.	Remarks.
				Chlorine.	Oxygen required for Organic Matter.	Free Ammonia.	Albuminoid Ammonia.	Nitric Acid.	Hardness.			
									Total.	Fixed.		
53	Roscrea.—Well in Barrack Square, 38 feet deep.	Slightly yellow, not turbid; small sediment; dull lustre; good taste.	Mineral grit; dyed wool; cotton and linen fibre; spores of fungi. Living forms, anguillula; amœba.	21·2000	0·0400	0·0054	0·0214	9·4161	50·0	9·0	Several white non-liquefying colonies; several yellow liquefying colonies; some moulds.	Unfit for drinking.
54	Devizes.—Well in washhouse, 26 feet deep.	Slightly yellow, not turbid; some sediment; lustre and taste good; no smell.	A quantity of mineral grit.	3·8000	0·0560	None	0·0117	6·4553	37·5	13·5	On fifth day considerable liquefaction; all white colonies; some flat crenate colonies becoming yellow.	Usable after very careful filtration.
55	Devizes.—Well in yard, 26 feet deep.	Same as Sample No. 53.	Very small sediment; solitary vorticella; one or two small paramecium.	3·5000	0·0600	None	0·0252	6·4533	37·5	18·0	On fifth day almost entire liquefaction. Colonies flat and crenate becoming chromogenic.	Well requires cleaning out.
56	Fort Anne, Clare. —Well in yard, 17 feet deep.	Clear and colourless; some sediment; good lustre and taste; no smell.	Carbonate of lime; vegetable débris; a few small infusoria; anthophysa tubes.	3·3000	0·0280	0·0025	0·0075	1·5937	35·0	7·5	On sixth day several liquefying colonies both white and yellow; several excavated; some circular non-liquefying colonies; yellow.	Usable after filtration.
57	Fort Anne, Clare. —Spring by carriage drive, 3 feet deep.	Yellow; turbid; some sediment; good lustre; flat taste; no smell.	Dyed cotton and linen fibre; large mycelium growth; a few small infusoria.	2·1000	0·0520	0·0422	0·0185	1·5054	37·5	7·5	On sixth day considerable amount of liquefaction both white and yellow. Large numbers of moulds. Colonies flat and cloudy, some crescentic and cup-shaped.	Unfit for drinking.

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No. of Sample.	Source.	Physical Characters.	Microscopic Characters of the Sediment.	Quantitative Analyses in parts per 100,000.							Cultivation Experiments for Bacteria, &c.	Remarks.
				Chlorine.	Oxygen required for Organic Matter.	Free Ammonia.	Albuminoid Ammonia.	Nitric Acid.	Hardness. Total.	Hardness. Fixed.		
58	Lincoln. — From hospital.	Slightly yellow, not turbid; small sediment; lustre and taste good; smell none.	Sand; vegetable débris; exuviæ of crustacea; numerous small infusoria; dyed silk fibres.	3·2000	0·0440	None	0·0156	3·0343	9·0	8·0	On third day innumerable white dots; some white raised colonies; also flat crescentic spreading colonies with yellow turbid centre; after seven days complete liquefaction; some moulds.	This water favours the growth of lower forms of life. It requires very careful filtration before use. Exposed to dust.
59	Lincoln. — From married quarters.	Same as Sample 57	Vegetable débris; numerous small infusoria; some cotton fibres; one dyed silk fibre.	3·2000	0·0720	None	0·0156	2·8593	9·0	8·0	On third day a few white dots; one raised white nucleated colony. Three flat crescentic white colonies; on seventh day some liquefaction.	Same as No. 57.
60	Lincoln.—Officers' mess.	Slightly yellow, not turbid; very small sediment; good lustre and taste; no smell.	Vegetable débris; numerous small infusoria; some zoogloea growth.	3·2000	0·0520	None	None	2·8154	9·0	8·0	On third day a few white dots; on seventh day numerous circular liquefying yellowish colonies; several irregular flat colonies; some small round non-liquefying ones.	Ditto.
61	Lincoln. — Men's block.	Same as Sample 59.	Sand; vegetable débris; exuviæ of crustacea; stylonychia in large numbers; deal and cotton fibres.	3·2000	0·0600	None	0·0156	3·0160	9·0	8·0	On third day a few dots; one flat crescentic white quasi-nucleated colony; on seventh day numerous flat superficial "cloudy" colonies, many iridescent; one semi-liquefying; several circular whitish non-liquefying colonies.	Ditto.

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No. of Sample.	Source.	Physical Characters.	Microscopic Characters of the Sediment.	Quantitative Analyses in parts per 100,000.							Cultivation Experiments for Bacteria, &c.	Remarks.
				Chlorine.	Oxygen required for Organic Matter.	Free Ammonia.	Albuminoid Ammonia.	Nitric Acid.	Hardness. Total.	Hardness. Fixed.		
62	Lincoln. — Large tank.	Slightly yellow, not turbid; small sediment; good lustre and taste; no smell.	Exuviæ of crustacea; vegetable débris; cotton fibre; zooglæa growth.	3·2000	0·0600	None	0·0156	2·8626	9·0	8·0	On third day no change; on seventh day innumerable flat superficial irregular colonies; colour yellow; no liquefaction.	Same as No. 57.
63	Fort Camden.— Main tank.	Slightly yellow, not turbid; large sediment; earthy taste and smell.	Mineral grit and amorphous matter; decaying vegetable fibre; spores of fungi; epidermis of grass; stylonychia; halteria; minute amœba.	3·4000	0·0800	None	0·0176	1·1998	11·5	7·5	On sixth day six non-liquefying small white colonies; a few milky colonies, and some yellow. After fifteen days liquefaction set in and destroys gradually most of the colonies.	Unfit. The tank requires cleaning out.
64	Fort Camden.— Well near magazine, 44 feet deep.	Slightly yellow, not turbid; large sediment; taste good; no smell.	Mineral grit and ferruginous matter; no aminal or vegetable life.	6·0000	0·0880	None	0·0144	1·5900	13·0	11·5	On tenth day extensive white liquefaction. On twelth day complete liquefaction; small white colonies from the third day.	Should be carefully filtered before use.
65	Fort Camden.— Well, right upper battery, 76 feet deep.	Same as No. 63	Vegetable débris; epidermis of grass; a few amœba; cotton fibre; spores and mycelium of fungi.	8·1000	0·0480	None	0·0220	4·7365	22·0	18·0	On tenth day no liquefaction. A few colonies in dots and spindle shaped; some crescentic in shape; some yellow; on moulds.	Unfit. Well should be cleaned out.
66	Shoeburyness. — Artesian well, 844 feet deep.	Slightly yellow; turbid; large sediment; dull lustre; taste flat.	Amorphous granular, mineral matter, and a few minute infusoria.	26·5000	0·1280	0·0453	0·0052	1·3300	5·0	4·0	On sixth day numerous white and yellow colonies, with depression and coalescing. On ninth day very extensive liquefaction increasing gradually.	This well is of great depth. The organic matter is probably harmless. It may be used after filtration.

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No. of Sample.	Source.	Physical Characters.	Microscopic Characters of the Sediment.	Quantitative Analyses in parts per 100,000.							Cultivation Experiments for Bacteria, &c.	Remarks.
				Chlorine.	Oxygen required for Organic Matter.	Free Ammonia.	Albuminoid Ammonia.	Nitric Acid.	Hardness. Total.	Hardness. Fixed.		
67	Shoeburyness. — New artesian well, 844 feet deep.	Same as Sample 66	Amorphous granular matter; a few minute infusoria.	26·4000	0·1240	0·0420	0·0052	1·1889	5·0	4·0	On sixth day several pale irregular superficial quasi-nucleated colonies; some iridescent colonies; some moulds; liquefaction spreading.	Same as Sample 66.
68	Aldershot.— From Brownloaf Hill, Cæsar's Camp.	Slightly yellow, not turbid; small sediment; good lustre; flat taste; no smell.	Some zooglæa growth and algæ forms.	1·3000	0·0440	None	0·0048	0·1750	4·0	2·5	About twelve liquid colonies after six days, with several others non-liquefying. After twelve days almost entire liquefaction; some dots still visible.	Fit for drinking.
69	Aldershot.— From spring on "K" range, Cæsar's Camp.	Same as Sample 68	A few diatoms and zooglæa growth; a few minute infusoria; some sand.	1·4000	0·0320	None	None	0·2188	3·0	2·5	On sixth day a few pale irregular superficial colonies; a few dots after twelve days; no liquefaction; but colonies growing.	Ditto.
70	Lydd.—New well, 20 feet 6 inches deep.	Yellow, slightly turbid; large sediment; dull lustre; taste good; no smell.	Amorphous matter; minute infusoria; sand; living forms, actinophrys and oxytricha.	5·4000	0·1060	0·0804	0·0132	2·4444	11·0	8·0	On fifth day numerous colonies, liquefaction slowly increasing; some whitish; some yellow; no decidedly liquefying colonies.	Unfit for drinking.
71	Weedon. — Well, "A" block, North Pump.	Clear and colourless; sediment small; lustre good; taste good; no smell.	Sand; vegetable débris; filamentous algæ, infusoria, including amphileptus, exuviæ of crustacea, cotton fibres.	3·7000	0·0360	0·0613	0·0044	1·3493	37·5	14·5	On fifth day very extensive whitish liquefaction; a few milky colonies, and some white dots. On tenth day numerous liquefying colonies; some whitish, some yellow, pale, and superficial; a very strong odour from these plates.	Very impure. Unfit for drinking.

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No. of Sample.	Source.	Physical Characters.	Microscopic Characters of the Sediment.	Quantitative Analyses in parts per 100,000.							Cultivation Experiments for Bacteria, &c.	Remarks.
				Chlorine.	Oxygen required for Organic Matter.	Free Ammonia.	Albuminoid Ammonia.	Nitric Acid.	Hardness. Total.	Hardness. Fixed.		
72	Weedon. — From well south of A block.	Clear and colourless; sediment small; lustre good; taste palatable; smell none.	Sand; vegetable débris; a few infusoria, including vorticella; some cotton fibre.	4·2000	0·0280	None	0·0044	1·1451	37·5	17·0	On sixth day very extensive whitish liquefaction, and a few milky ones. On seventh day complete liquefaction.	Fit for drinking.
73	Weedon. — Well marked E.	Same as No. 72	Sand; amorphous matter; vegetable débris; minute infusoria.	2·0000	0·0360	None	0·0022	1·1670	45·0	14·0	On ninth day several colonies, some white, some yellow, different sizes, but tending to become circular. On fifteenth day nearly all liquefying.	Ditto.
74	Weedon. — Well, B and C blocks.	Clear and colourless; small sediment; taste palatable; no smell.	Sand; amorphous matter; vegetable débris; filamentous algæ; infusoria; dyed woollen fibre.	3·0000	0·0320	0·0720	0·0044	0·7987	45·0	13·5	On sixth day several pale irregular flat colonies, liquefying in centre; numerous dots; some elongated whitish colonies; a strong odour from these plates.	Unfit for use.
75	Roscrea. — Well, 38 feet deep.	Slightly yellow; slight turbidity; large sediment; taste earthy; no smell.	Decaying vegetable matter; epithelium; living forms, euplotis, rotifera, urostyla, minute amœba; spores of fungi.	13·7000	0·0520	0·0099	0·0120	6·0175	45·0	9·0	On sixth day some whitish circular and cupped-shaped colonies, a few semi-liquefying, yellowish and irregular. On ninth day liquefaction extending.	Unfit for drinking.
76	Roscrea.—Same as Sample 75; but filtered.	Slightly yellow, not turbid; sediment small; lustre dull; taste palatable.	Amorphous matter: vegetable débris; a little sand; mycelium growth.	13·1000	0·0560	0·0221	0·0080	5·9591	47·5	9·0	On sixth day very numerous milky colonies; several dots; some liquefaction.	Filtration has not improved this water; the filtering medium is probably old.

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No. of Sample.	Source.	Physical Characters.	Microscopic Characters of the Sediment.	Quantitative Analyses in parts per 100,000.							Cultivation Experiments for Bacteria, &c.	Remarks.
				Chlorine.	Oxygen required for Organic Matter.	Free Ammonia.	Albuminoid Ammonia.	Nitric Acid.	Hardness.			
									Total.	Fixed.		
77	Roscrea.—Same as Sample 75, but water taken about 6 feet down the well.	Slightly yellow; slight turbidity; lustre dull; taste palatable; no smell.	Sand; amorphous matter; vegetable débris; zoogloea growth; numerous vorticellæ; a few minute infusoria.	3·8000	0·0800	0·0409	0·0154	3·5375	19·0	10·0	On fourth day very numerous dots and small milky colonies; a few superficial irregular yellowish colonies; some moulds.	Unfit for drinking.
78	Sligo.—In front of ablution room, 75 feet deep.	Slightly yellow; not turbid; very small sediment; lustre good; palatable; no smell.	Sand; vegetable débris; a few minute infusoria; epidermis of grass.	2·8000	0·0880	0·0054	0·0150	1·6251	37·5	16·5	On seventh day numerous white circular colonies; some yellow, one superficial and pale. On ninth day complete liquefaction.	Unfit; well should be cleaned out.
79	Dublin. — Richmond Barracks. Well in front of infant school, 17 feet 6 inches deep.	Slightly yellow, not turbid; large sediment; palatable; no smell.	Sand; amorphous matter; vegetable débris; diatoms; numbers of large infusoria, including actinophrys, amphileptus, &c.	2·5000	0·0360	0·0340	0·0080	1·3503	25·0	11·5	On eighth day numerous whitish yellowish colonies, some cupped shaped. On tenth day nearly all liquefying; cultivations interfered with by frost.	Unfit for drinking.
80	Dublin. — Richmond Barracks. Well in front of F, soldiers' quarters.	Slightly yellow, a little turbid; large sediment; lustre dull; palatable; no smell.	Finely distributed clay; amorphous matter; a few diatoms, and minute infusoria.	1·8000	0·0440	0·0448	0·0088	1·4549	11·5	7·0	On eighth day a few white raised irregular colonies; some deep purple colour and pale violet flakes; showed bacteria when cultivated further in gelatine tubes.	Unfit for drinking.

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No. of Sample.	Source.	Physical Characters.	Microscopic Characters of the Sediment.	Quantitative Analyses in parts per 100,000.							Cultivation Experiments for Bacteria, &c.	Remarks.
				Chlorine.	Oxygen required for Organic Matter.	Free Ammonia.	Albuminoid Ammonia.	Nitric Acid.	Hardness. Total.	Hardness. Fixed.		
81	Sandhurst R.M.C. —Tap near R.E. quarters, from reservoir.	Slightly yellow, not turbid; small sediment; good lustre; palatable; no smell.	Amorphous matter; vegetable débris; mycelium of fungi; exuviæ of crustacea; a few infusoria.	1·3000	0·1160	0·0048	0·0044	0·2808	1·5	1·5	On sixth day four whitish yellowish colonies; a few pale irregular colonies; some moulds; no liquefaction.	Fit for drinking.
82	Sandhurst R.M.C. —Tap near R.E. office.	Same as Sample 81.	Amorphous matter; vegetable fibre, mycelium of fungi, algæ forms, rotifer, and a few minute infusoria.	1·3000	0·1160	0·0048	0·0044	0·2845	1·5	1·5	On sixth day a few whitish opaque and some semi-transparent colonies. On ninth day a few superficial transparent colonies; no liquefaction.	Ditto.
83	Sandhurst. — Tap in sergeant-majors' quarters, N.E., Staff College.	Same as Sample 82.	A little vegetable débris, and a few small infusoria.	1·3000	0·1120	0·0044	0·0044	0·2830	1·5	1·5	On sixth day a few milky colonies, whitish; a few yellow; subsequently a few dots; no liquefaction.	Ditto.
84	Weedon. — Hospital well, 90 feet deep.	Clear and colourless; very small sediment; taste palatable; no smell.	Cotton and linen dyed wool, red and blue; minute infusoria; micrococci.	1·9000	0·0280	0·0028	0·0052	0·9956	27·5	8·5	On sixth day several whitish circular colonies; numerous milky raised ones. On ninth day nearly all liquefying; strong smell.	Evidence of surface impurity and dust, which should be guarded against. Usable.
85	Weedon. — Ordnance Row well depth 18 feet.	Same as Sample 84.	Decaying vegetable fibre; cotton and linen fibre.	4·1000	0·0280	0·2880	0·0112	5·6528	25·0	11·0	On sixth day some semi-liquefying yellowish colonies. On tenth day nearly all liquefied, with three violet flakes among the liquefied portion.	Very impure; unfit for use.

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No. of Sample.	Source.	Physical Characters.	Microscopic Characters of the Sediment.	Quantitative Analyses in parts per 100,000.							Cultivation Experiments for Bacteria, &c.	Remarks.
				Chlorine.	Oxygen required for Organic Matter.	Free Ammonia.	Albuminoid Ammonia.	Nitric Acid.	Hardness.			
									Total.	Fixed.		
86	Weedon.—Taken from well in S.O. garden, 16 feet deep.	Yellow, not turbid; small sediment; dull lustre; palatable; no smell.	A good deal of amorphous matter, chiefly mineral; a few infusoria, including chætonotus.	4·0000	0·2280	0·0028	0·0520	10·1703	27·5	19·0	On sixth day several opaque dots; subsequently some white colonies; no liquefaction.	Unfit for use.
87	Weedon.—North Pavilion well, 16 feet deep.	Clear and colourless; small sediment; lustre good; palatable; no smell.	A little sand, amorphous matter, and mycelium of fungi.	3·9000	0·0400	0·0026	0·0074	10·1437	35·0	18·0	On sixth day, nil. On ninth day one mould; some whitish colonies subsequently, but no liquefaction.	A very suspicious sample of water.
88	Weedon.—Centre Pavilion well, 61 feet deep.	Slightly yellow, not turbid; very small sediment; good lustre; palatable; no smell.	Amorphous matter; mycelium and algæ growths; a little sand.	5·0000	0·0400	0·0031	0·0041	10·4920	32·5	20·5	On sixth day several dots and superficial irregular ones. On ninth day very extensive liquefaction, which was complete on twelfth day.	An unsafe water; usable after careful filtration; but visible sources of contamination should be looked for, and, if possible, another supply used.
89	Weedon.—Well in C.O.'s garden, 16 feet deep.	Clear and colourless; very small sediment; lustre good; palatable; no smell.	Sand; vegetable débris; mycelium growth; algæ; minute infusoria.	6·5000	0·0240	0·0028	0·0044	5·1685	32·5	16·0	On sixth day numerous raised colonies; superficial irregular colonies; moulds. On the ninth day nearly complete liquefaction.	Same as No. 88.

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Report on Bacterial Cultivations from Drinking Water, by Surgeon A. M. Davies, Assistant Professor of Hygiene.

The method of cultivation pursued has been that of Koch, consisting of plate cultivations in solid nutrient gelatine. A measured quantity of the water under examination is introduced into a test tube containing liquefied nutrient gelatine. This is then spread out on a glass plate, and in a few minutes becomes solid. The micro-organisms present in the water, if any, being now fixed in a solid medium, will grow in the places where they have become fixed, and in this way *colonies* of bacteria are developed, which can be differentiated from one another by various peculiarities of growth.

I. *Medium employed.*

Koch's nutrient gelatine has been used invariably. This consists of half a kilogramme (1 lb.) of beef, finely chopped up, and extracted with one litre (1¾ pints) of water, with the addition of 10 grammes peptonum siccum, 5 grammes common salt, and 100 grammes gelatine, rendered very slightly alkaline with carbonate of soda, filtered, and sterilised by successive boilings. A perfectly clear and transparent medium should result, solid at ordinary temperatures.

II. *Apparatus.*

1. *Glass plates.*—Small panes of glass, about 6 in. by 4 in.

2. *Glass benches.*—Slips of glass, with a piece of glass cemented on at each end. These are arranged one over the other in tiers to support the glass plates.

3. *Damp chambers.*—Shallow glass bells and dishes for holding the tiers of benches.

4. *Levelling apparatus.*—A sheet of glass on a stand capable of being exactly levelled (as shown by a spirit level), on which is placed the plate to receive the liquefied gelatine; the whole covered in with a bell glass.

5. *Graduated pipettes.*

6. An *iron box* to contain the glass plates, whilst being sterilised in the hot air bath.

7. Platinum needles and platinum-pointed forceps.

The above list includes the special apparatus used in these experiments; in addition, some means for heating, by gas or spirit lamp, is required; and an air bath, capable of reaching a temperature of 150° C. (300° F.).

III. *Method of Procedure.*

(*a.*) *Sterilisation of apparatus.*—The greatest care is required to make, and keep, sterile everything that is used in the experiments.

(1.) The nutrient gelatine has been previously sterilised, and received into sterilised test tubes, which have been plugged with cotton wool, and again sterilised by steam on four or five successive days.

(2.) The glass plates contained in the iron box are placed in an air bath and exposed to a temperature of 150° C. for an hour or more, on at least two successive occasions.

(3.) The glass benches are held in the flame of a Bunsen burner.

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(4.) The damp chamber is well washed with distilled water, and then rinsed with a one per 1,000 solution of corrosive sublimate. A filter paper saturated with this solution is placed at the bottom of the dish, thus providing a moist and antiseptic atmosphere within the chamber.

(5.) The glass pipette is exposed to intense heat by being held in the flame of the Bunsen burner for some minutes.

(*b.*) *Manipulation.*—(1) The apparatus having been sterilised as above mentioned, and made ready, some tubes of gelatine are liquefied by being placed in hot water; (2) at the same time a glass plate is transferred from the iron box to the levelled sheet of glass, and immediately covered over with a bell jar. Then (3) the graduated pipette (having been previously heated and allowed to cool) is plunged into the bottle of water to be examined, and 8 or 10 cubic centimetres flow into, or are sucked into it. (4) The pipette full of water being held in the right hand, with the forefinger over the top, the tube containing liquefied gelatine is taken in the left hand, the cotton wool plug removed with the thumb and finger of the left, while held between the second and third fingers of the right hand, and, the pipette being brought immediately into the test tube, one cubic centimetre of the water is allowed to flow into the gelatine, and the plug immediately replaced. (5) The tube containing the mixture of gelatine and water is gently rolled between the fingers to cause diffusion of the water throughout the gelatine, and is then replaced in the hot water. (6) After a minute or two, the tube is taken out, the plug removed, the bell jar of the levelling apparatus lifted, and the mixed gelatine and water poured carefully on to the sterilised plate of glass; the bell jar is immediately replaced. (7) After a few minutes the gelatine sets. The time taken for this varies with the temperature, between 2 and 10 minutes. The bell jar is then lifted, the plate transferred to a bench in the previously prepared damp chamber, and the glass cover of this chamber immediately replaced.

It is seen that exposure to the air of the gelatine or the glass plate takes place in steps 2, 4, 6, and 7 above mentioned; but this exposure is only momentary in each case except (6), which possibly occupies 10 or 15 seconds. Frequent blank experiments have shown that these brief exposures do not cause contamination of the cultivations.

Each chamber contains generally three plates in tiers one above the other. The glass cover prevents any contamination from the air, and the saturation of a filter paper with corrosive sublimate solution renders the atmosphere within the glass moist and at the same time antiseptic. The use of the sublimate is continued as a routine practice, but is really hardly needed, except as a means of cleanliness.

(*c.*) *Observation.*—The damp chambers remain in the laboratory, exposed to the light, and to the ordinary temperature of the room, varying according to season between 50° and 65° F. during the day, but falling considerably below this during winter nights. The plates are inspected as frequently as other work permits, generally at intervals of 48 hours, or 3 days. It is not often that any growth is to be seen before 48 hours have elapsed, and frequently not until later; this depending to a considerable extent on the temperature, as well as on the presence and character of micro-organisms in the water. Observations were continued for a variable period, according to circumstances.

The present series of observations (which are only of a tentative character) records—

(1.) The presence or absence;

(2.) The time of appearance; and

(3.) The amount and number (roughly) of—

A. Liquefying colonies.

B. Non-liquefying colonies.

C. Moulds.

These observations are recorded in the accompanying table.

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IV. *Summary.*

The total number of samples of water cultivated in the year 1888 was 62.

Of these 56 yielded marked bacterial growth.

In 50 liquefaction of the gelatine was noted; slight in 10 cases, considerable, extensive, or nearly complete in 40 cases.

Liquefaction appeared as early as the end of the 3rd day in only 3 cases; after 4 days in 4 cases, and after 5 days in 7 cases. Of these 14 cases of speedy liquefaction, 6 were to a considerable extent occurring in March, October, and November, and therefore not probably attributable to warmth of the room. In 21 cases out of the 50 there was considerable liquefaction after 6 or 7 days.

Of the total number of 62 cases, 6 either yielded no growth at all or only the very slightest (which might be attributed to accidental contamination) after many days, or even 2 or 3 weeks.

In 16 cases no growth of any kind had developed after either 4 or 5 days.

Taking these two groups of samples,

(1) 16 cases of no appearance of growth after 4 or 5 days,

(2) 14 cases of liquefaction occurring as early as after 4 or 5 days,

and comparing the chemical constitution of these waters with their behaviour to the cultivation test, there does not appear to be any connexion between the goodness or badness of a water from a chemical aspect, and the presence or absence of bacterial growth or liquefaction; neither the chlorine, nor the free ammonia, nor the albuminoid ammonia seem to bear any relation to the bacterial characters of the water.

In 13 instances, where two or more samples of water have been drawn at the same time, forwarded for examination on the same day, and by chemical analysis performed simultaneously, shown to be (as far as we are able to judge) practically the same water, bacterial cultivations have given concordant results in only 4 instances; while in 6 instances the results have been entirely discrepant, such as extensive liquefaction in the one sample, and hardly any bacterial growth at all in the other, both of which, according to chemical analysis, would appear to be the same water.

With regard to the effect of *length of time* in storing the water, as some of these samples were sent from a considerable distance, many days elapsed sometimes before the examination.

23 samples were kept 15 days or more, of which 18, or 78 per cent., liquefied.

12 samples were kept 10 days or less, of which 9, or 75 per cent., liquefied.

27 samples were kept between 11 and 14 days, of which 19, or 70 per cent., liquefied.

Length of storage, therefore, does not appear to have had any effect one way or the other.

So far, then, no opinion apparently can be expressed as to the character of a drinking water from the rough bacterial testing as here recorded. But the number of observations is altogether too small to justify one in drawing any conclusion either one way or the other. Observations are being continued with the knowledge gained by previous experience, particularly in the direction of identifying the various different kinds of bacterial growths, which it is hoped may eventually lead to some result.

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TABLE SHOWING RESULTS OF CULIVATIONS FROM SAMPLES OF DRINKING WATER.

No.	Date.	Source.	After two Days.	After three Days.	After four Days.	After five Days.	After six Days.	After seven Days.	After eight to ten Days.	—
1	13.1.88	Grangegorman, subsoil water	—	—	—	—	—	Several colonies.	Ten days; considerable liquefaction.	—
3	16.2.88	Royal Barracks, S.W., Palatine Square.	—	—	Nil.	—	—	—	Nine days; some liquefaction.	Eighteen days; liquefaction increasing.
4	„	Royal Barracks, F house, Palatine Square.	—	—	Nil.	—	—	—	Nine days; some liquefaction.	Eighteen days; liquefaction increasing.
5	20.2.88	Sheffield Hospital - -	—	—	—	Nil.	—	Nil.	—	Fourteen days; nil.
6	„	Sheffield.—Married quarters	—	—	—	Very numerous minute colonies.	—	Innumerable colonies.	—	Fourteen days; no change.
7	„	Belfast Water Company -	—	—	—	Nil.	—	Two colonies -	—	Fourteen days; some liquefaction.
8	13.3.88	Parkhurst.—Unfiltered -	—	—	Innumerable colonies, many liquefying.	—	—	Same.	Eight days; complete liquefaction.	—
10	14.3.88	Sandown tank - -	—	A few minute colonies.	—	Several colonies.	—	Numerous colonies, some liquefying.	—	Seventeen days; complete liquefaction.
12	13.3.88	Sandown Hospital - -	—	—	Nil.	—	Nil.	—	Eight days; one colony.	Nineteen days; one colony.
13	17.3.88	Golden Hill.—Deep well -	—	Nil.	—	Nil.	—	—	Nine days; numerous colonies; some liquefaction.	Fourteen days; extensive liquefaction; some moulds.
14	„	Golden Hill.—Well in field -	—	Nil.	—	Nil.	—	—	Nine days; a few colonies; some liquefaction.	Fourteen days; some liquefaction; some moulds.
15	19.3.88	Warden Point. — Shallow well.	—	Nil.	—	—	—	Numerous colonies.	—	Twelve days, some liquefaction.

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Cultivation Experiments—*continued*.

No.	Date.	Source.	After two Days.	After three Days.	After four Days.	After five Days.	After six Days.	After seven Days.	After eight to ten Days.	——
16	22.3.88	Grangegorman. — Subsoil water.	—	—	Nil.	—	—	—	Nine days; one colony; several moulds.	Twelve days; three colonies; several moulds.
28	5.6.88	Aldershot. — Government House.	Numerous minute colonies.	—	—	—	Some liquefaction.	Very extensive liquefaction.	—	—
32	3.7.88	Curragh.—Well, 46 feet -	—	Several colonies and moulds.	—	—	Several colonies and moulds.	—	—	—
33	3.7.88	Lusk Prison Farm.—Well, 25 feet.	—	Several moulds and colonies, one liquefying.	—	—	Same - -	—	—	—
44	11.10.88	Portland.—No. 8 cookhouse	Nil.	—	—	Nil.	—	Three moulds.	—	After eighteen days; only moulds.
45	„	Portland.—No. 16 cookhouse	Nil.	—	—	Numerous colonies; some liquefaction.	—	Same - -	—	Eleven days; very extensive liquefaction.
46	„	Portland.—R.E. pump -	Nil.	—	—	Very numerous colonies.	—	Same - -	—	Eleven days; some liquefaction.
47	„	Portland.—Main supply, unfiltered.	—	—	Several colonies.	—	Some liquefaction.	—	Ten days; some liquefaction.	—
48	18.10.88	Newbridge.—N house -	Nil.	—	Two colonies -	—	A few colonies, one liquefying.	—	Eight days; some liquefaction.	—
49	„	Newbridge.—Q house -	Nil.	—	Nil.	—	One colony -	—	Eight days; one colony.	—
5	„	Newbridge.—Canteen -	Nil.	—	Nil.	—	Several colonies.	—	Eight days; several colonies.	—

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Cultivation Experiments—*continued.*

No.	Date.	Source.	After two Days.	After three Days.	After four Days.	After five Days.	After six Days.	After seven Days.	After eight to ten Days.	—
51	24.10.88	Crotanstown. — Well, back door.	—	Very numerous colonies, some liquefying.	—	Complete liquefaction.	—	—	—	—
52	„	Crotanstown. — Well in yard.	—	A few liquefying colonies.	—	Considerable liquefaction.	—	—	—	—
53	„	Roscrea.—Well in square -	—	Nil.	—	Several colonies; some moulds.	—	—	Eight days; some liquefaction.	—
54	20.11.88	Devizes.—Well in washhouse.	—	—	Several colonies, some liquefaction.	—	Liquefaction increasing.	—	—	—
55	„	Devizes.—Well in yard -	—	—	Numerous colonies, many liquefying.	—	Liquefaction increasing.	—	—	—
56	28.11.88	Fort Anne.—Well, 17 feet -	—	Several colonies.	—	—	Numerous colonies, many liquefying.	—	Nine days; very extensive liquefaction.	—
57	„	Fort Anne.—Spring - -	—	Several colonies.	—	—	Numerous colonies, many liquefying.	—	Nine days; extensive liquefaction.	—
58	27.11.88	Lincoln.—Hospital - -	—	Innumerable dots and colonies.	Some liquefaction.	—	—	Very extensive liquefaction.	Nine days; nearly all liquefied.	—
59	„	Lincoln.—Married quarters	—	A few dots and colonies.	A few dots and colonies.	—	—	Some liquefaction.	Nine days; extensive liquefaction.	—
60	„	Lincoln.—Officers' mess -	—	A very few dots.	Some colonies	—	—	Numerous colonies, some liquefying.	Nine days; nearly all liquefied.	—
61	„	Lincoln.—Men's block -	—	A few dots -	Several colonies	—	—	Very numerous colonies, one liquefying.	Nine days; some liquefaction.	—

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Cultivation Experiments—*continued*.

No.	Date.	Source.	After two Days.	After three Days.	After four Days.	After five Days.	After six Days.	After seven Days.	After eight to ten Days.	—
62	27.11.88	Lincoln.—Large tank	—	Nil.	Innumerable dots and colonies.	—	—	Innumerable dots and colonies.	Nine days; no change; no liquefaction.	—
63	12.12.88	Camden Fort.—Main tank	—	—	—	A few colonies	Several colonies	—	Nine days; some liquefaction.	Twelve days; liquefaction increasing.
64	„	Camden.—Well, 44 feet	—	—	—	A few colonies	Several colonies; some liquefaction.	—	Nine days; very extensive liquefaction.	Twelve days; complete liquefaction.
65	„	Camden.—Well, 76 feet	—	—	—	Nil.	A few colonies	—	Nine days; several colonies; some liquefaction.	Twelve days; liquefaction increasing.
66	13.12.88	Shoeburyness. — Artesian well, 844 feet.	—	Numerous dots and colonies.	—	—	Considerable liquefaction.	—	Nine days; nearly all liquefied.	—
67	„	Shoeburyness.—Same	—	Numerous dots and colonies.	—	—	Considerable liquefaction.	—	Nine days; considerable liquefaction.	Sixteen days; nearly all liquefied.
68	„	Aldershot.—Brownloaf Hill	—	Numerous dots and colonies.	—	—	Innumerable colonies; some liquefaction.	—	Nine days; considerable liquefaction.	Sixteen days; nearly all liquefied.
69	„	Aldershot. — K range, Cæsar's Camp.	—	Nil.	—	—	Several colonies	—	Nine days; several colonies.	Sixteen days; numerous colonies; no liquefaction.
70	24.12.88	Lydd.—Well, 20 feet	—	Nil.	—	Numerous colonies; some liquefaction.	—	—	Ten days; liquefaction increasing.	Fifteen days; liquefaction increasing.
71	„	Weedon.—Well A, block N	—	Innumerable dots and colonies.	—	Very extensive liquefaction.	—	—	Eight days; nearly all liquefied.	—
72	„	Weedon.—Well A, block S	—	Innumerable dots.	—	Very extensive liquefaction.	—	—	Eight days; nearly all liquefied.	—

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Cultivation Experiments—*continued.*

No.	Date.	Source.	After two Days.	After three Days.	After four Days.	After five Days.	After six Days.	After seven Days.	After eight to ten Days.	—
73	27.12.88	Weedon.—Well, E block	Nil.	—	—	Several colonies; slight liquefaction.	—	Considerable liquefaction.	—	Twelve days; nearly all liquefied.
74	„	Weedon.—Well, B and C blocks.	Nil.	—	—	Numerous colonies.	—	Considerable liquefaction.	—	Twelve days; nearly all liquefied.
75	4.1.89	Roscrea.—Well, 38 feet	—	Nil.	Nil.	—	Numerous colonies; some liquefaction.	—	Ten days; liquefaction increasing.	—
76	„	Roscrea.—Well, filtered	—	Nil.	Very numerous dots and colonies.	—	Very numerous colonies; some liquefaction.	—	Ten days; liquefaction increasing.	—
77	„	Roscrea.—Supposed surface water.	—	Nil.	Very numerous dots and colonies.	—	Very numerous colonies; some liquefaction.	—	Ten days; liquefaction increasing.	—
78	5.1.89	Sligo.—Well, 75 feet	—	Nil.	—	—	—	Numerous colonies; considerable liquefaction.	Nine days; nearly all liquefied.	—
79	4.1.89	Richmond Barracks.—Well, infant school.	—	Nil.	A few colonies	—	—	—	Eight days; several colonies; considerable liquefaction.	Twelve days; complete liquefaction.
80	„	Richmond Barracks.—Well, F quarters.	—	Nil.	A few colonies	—	—	—	Eight days; numerous colonies; extensive liquefaction.	Twelve days; complete liquefaction.
81	8.1.89	Sandhurst.—R.M.C., Fahy's quarters.	—	—	A few colonies	—	A few colonies; some liquefaction.	—	Nine days; liquefaction increasing.	—

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Cultivation Experiments—*continued.*

No.	Date.	Source.	After two Days.	After three Days.	After four Days.	After five Days.	After six Days.	After seven Days.	After eight to ten Days.	——
82	8.1.89	Sandhurst.—R.M.C., R.E. office.	—	—	A few colonies	—	Several colonies; considerable liquefaction.	—	Nine days; liquefaction increasing.	—
83	„	Sandhurst.—Staff college -	—	—	Nil.	—	One colony -	—	Nine days; two colonies.	—
84	11.1.89	Weedon Hospital.—Well, 90 feet.	—	—	—	Numerous colonies; some liquefaction.	—	—	Eight days; nearly all liquefied.	—
85	„	Weedon, Ordnance Row.—Well, 18 feet.	—	—	—	A few colonies; some liquefaction.	—	—	Eight days; numerous colonies; some liquefaction.	Nineteen days; extensive liquefaction.
86	„	Weedon.—S.O.S.O. garden, 16 feet.	—	—	—	Two dots -	—	—	Eight days; a few colonies, one liquefying.	Nineteen days; slight liquefaction.
87	„	Weedon.—N Pavilion, 16 feet.	—	—	—	Nil.	—	—	Eight days; one mould.	Nineteen days; two colonies; one mould.
88	„	Weedon.—Centre Pavilion, 61 feet.	—	—	Several dots and colonies.	—	—	Very extensive liquefaction.	—	Eighteen days; nearly all liquefied.
89	„	Weedon.—C.O. garden, 16 feet.	—	—	Numerous colonies.	—	—	Some liquefaction.	—	Eighteen days; nearly all liquefied.

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Filtration.

The question of the filtration of potable waters still continues to occupy attention, and spongy iron, carferal, and charcoal have all been experimented on. An analysis of these experiments are in former Reports. This year we have undertaken the examination of "Magnetic Spongy Carbon." The results of the *first* series were completed some months ago. Since then we have undertaken a *second* series, but the great pressure of work on our laboratory has interrupted our experiments, and I can, therefore, give only one series this year.

The test was a severe one, and the results afford some useful information.

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EXPERIMENTS with FILTERING MATERIAL (Magneti Spongy Carbon) from the "International Water and Sewage Purification Company," 11, Queen Victoria Street, London, E.C.

NOTE.—The Magnetic Spongy Carbon was received marked Nos. 1, 2, and 3; No. 1 was fine, No. 2 medium, and No. 3 very coarse; Nos. 1 and 2 only used in these experiments.

Constituents.	Tap Water.			Albumen Solution, 0·5 c.c. in 12 litres of Distilled Water.			Albumen Solution, 0·25 c.c. in 12 litres of Distilled Water.			Gelatine Solution, 0·25 gramme in 12 litres of Distilled Water.			Gelatine Solution, 0·08 gramme in 12 litres of Distilled Water.		
	Original.	Once through the Filter.	Three times through the Filter.	Original.	Once through the Filter.	Three times through the Filter.	Original.	Once through the Filter.	Three times through the Filter.	Original.	Once through the Filter.	Three times through the Filter.	Original.	Once through the Filter.	Three times through the Filter.
Free Ammonia	·0054	·0380	·0380	·0052	·0397	·0268	·0052	·0352	·0272	Nil.	·0272	·0208	·0052	·0512	·0208
Albuminoid Ammonia	·0208	·0104	·0104	·0240	·0024	·0024	·0201	·0069	·0048	·1152	·0024	Nil.	·0201	·0075	Nil.
Total Oxygen	·1000	·1800	·1480	·1040	·1560	·1400	·0600	·1200	·0960	·0680	·1120	·0960	·0440	·0840	·0760
Oxygen for Organic matter	·0800	·1560	·1400	·0680	·1400	·1160	·0480	·1080	·0920	·0360	·1040	·0760	·0280	·0720	·0600
Total Hardness	6·00	10·50	8·50	0·50	8·50	7·50	0·50	6·50	3·50	0·50	5·00	4·50	0·50	4·50	5·00
Chlorine	3·40	9·60	7·00	Nil.	6·60	3·40	Nil.	1·50	1·20	Nil.	0·70	0·70	Nil.	0·20	0·40

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Experiments with Filtering Material—*continued.*

Constituents.	Hay Solution in Distilled Water.			Urine and Tap Water (1 in 3,000).			Sewage and Tap Water. About 30 Gallons trickled through the Filter.					Sewage and Tap Water. After Sewage had been running through the Filter for a month.		Pure distilled Water passed through the Filter after the foregoing Experiments.
	Original.	Once through the Filter.	Three times through the Filter.	Original.	Once through the Filter.	Three times through the Filter.	Original when first made.	Original being two days in the Tub.	Original being five days in the Tub.	From Filter after two days.	From Filter after five days.	Original.	Filtered.	
Free Ammonia - - - -	·0217	·0156	·0156	·0260	·0208	·0260	·0652	·0761	·1740	·0761	·0652	1·2480	4·2080	15·6000
Albuminoid Ammonia - - -	·0253	·0086	·0086	·0336	·0168	·0224	·0761	·0761	·0761	·0168	·0168	·4080	·4080	·0694
Total Oxygen - - - -	·7080	·0880	·0800	·1200	·0800	·0640	·2320	·2800	·2880	·0480	·0280	·3360	·1800	·1400
Oxygen for Organic matter - - -	·6680	·0880	·0720	·1200	·0720	·0600	·2320	·2320	·2880	·0400	·0280	·2960	·1600	·1400
Total Hardness - - - -	1·000	5·00	5·00	5·50	6·00	6·50	6·50	6·50	6·50	8·00	8·00	11·50	40·00	40·00
Chlorine - - - -	0·30	0·30	0·30	3·30	1·60	2·10	3·30	3·30	3·30	7·20	3·30	6·40	15·10	13·50

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Per-centage Results.—Increase or Diminution.

Constituents.	Tap Water.		Strong Albuminoid Solution.		Weak Albuminoid Solution.		Strong Gelatine Solution.		Weak Gelatine Solution.		Hay Solution.		Urine Solution.		Sewage Solution.		
	Once.	Three times.	Once.	Three times.	Once.	Three times.	Once.	Three times.	Once.	Three times.	Once.	Three times.	Once.	Three times.	After 2 Days.	After 5 Days.	After a Month.
Free Ammonia	+604·	+604·	+663·	+415·	+577·	+423·	+∞	+∞	+500·	+300·	−28·	−28·	−20·	Nil	Nil	−63·	+237·
Albuminoid Ammonia	−50·	−50·	−90·	−90·	−66·	−76·	−98·	−100·	−63·	−100·	−62·	−62·	−50·	−33·	−78·	−78·	Nil
Total Oxygen	+80·	+48·	+50·	+35·	+100·	+60·	+65·	+41·	+91·	+73·	−88·	−89·	−33·	−47·	−83·	−83·	−45·
Oxygen for Organic matter	+95·	+75·	+106·	+70·	+125·	+92·	+189·	+111·	+157·	+114·	−87·	−89·	−40·	−50·	−83·	−90·	−46·
Total Hardness	+75·	+42·	+1600·	+1400·	+1200·	+600·	+900·	+800·	+800·	+900·	+400·	+400·	+9·	+18·	+23·	+23·	+248·
Chlorine	+182·	+106·	+∞	+∞	+∞	+∞	+∞	+∞	+∞	+∞	Nil	Nil	−52·	−36·	+89·	Nil	+136·

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1. In the experiments, series 1 to 5 upon (1) ordinary tap water and (2) solutions of fresh animal organic matter (albumen and gelatine), a large increase after filtration is to be noted in all the constituents, with the marked exception of albuminoid ammonia

2. On comparing the results of passing these solutions once through with those obtained on passing them through three times it is seen that in the latter case there is a reduction, generally very considerable, in this increase, in all except two instances.

3. In the experiments series 6, 7, and 8 upon a vegetable (hay) infusion, urine and sewage solutions, a marked reduction took place in all the constituents, except the earthy salts (which were in each case increased), and the free ammonia (which in two instances was unaffected); the chlorine also in one instance was increased, in another unaltered.

4. Comparing a single exposure (in these series of experiments), with exposure to the filtering medium three times, there is practically no difference in the case of the hay solution; while in the urine solution the diminution was less in the free and albuminoid ammonia, but greater in the oxygen for oxidisable matter, in the latter than in the former case.

5. As regards the staying power of the filtering medium, while in the case of an ordinary water (series 1) and with waters containing *fresh animal organic matter* (albumen or gelatine, series 1 to 5) a large increase in all the constituents took place, except albuminoid ammonia, in the case of waters rendered impure by addition of *vegetable* matter (hay), urine, or sewage, the filter materially *reduced* the impurities (as a rule) with the exception of earthy salts and chlorine.

7. If the albuminoid ammonia is to be taken as an increase of *organic impurity*, it is seen that in all experiments, except those with urine and sewage, the filter reduced this constituent below the limit fixed for usable water, viz., ·01 parts per 100,000; and that in the case of urine and sewage solutions it effected very large reductions, even in these very impure waters. These results compare very favourably with those obtained in the experiments on spongy iron (*vide* Report on Hygiene. A.M.D. Reports for 1878, Appendix No. I.).

8. In regard to *other constituents*, this medium compares favourably with spongy iron and with magnetic iron, in experiments with urine and sewage solutions, but not in those with fresh organic matter.

9. In conclusion, this appears to be a powerful filtering medium, resembling spongy iron and magnetic iron, both previously favourably reported on by the late Professor de Chaumont, F.R.S., and considered by him to be the best filtering materials at present in the market. I am now making a second series of experiment, the results of which we hope to record next year.

Food.

A great deal of attention has been given to the soldier's ration during the last year. The subject is now under the consideration of a special committee, who are taking evidence and who have obtained a vast amount of information on various points connected with the dieting of soldiers.

Surgeon A. M. Davies, M.S., read an excellent paper on the subject before the Aldershot Military Society, in which he advocated the addition of bacon and cheese to the present diet. In November last, Colonel Burnett, commanding the 1st Battalion, Royal Irish Rifles at Mullingar, submitted a memorandum to the Quartermaster-General, in which he gave a sketch of the system he had adopted in his regiment. This memorandum has been circulated to all commanding officers by order of H.R.H. The Field-Marshal Commanding-in-Chief, and a special report has been called for.

Colonel Burnett has very kindly sent me copies of all his messing books, and I am certain he must have given a vast amount of time and trouble in perfecting his system. He certainly has succeeded in providing the soldier, out of his daily ration, with an ample diet and without any extra expense to the individual or the State.

I have had copies of the messing books of the regiment forwarded to me. These included all the issues for two weeks, and I have calculated the value

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of the diets. Taking the daily average at the lowest estimation I find it as follows :—

Table of Colonel Burnett's Scale of Diets.

——	Albuminates. Ozs.	Fats. Ozs.	Carbo-hydrates. Ozs.	Nitrogen. Grains.	Carbon. Grains.
Breakfast - -	0·9923	1·2400	5·2663	69·454	1637·6
Soup - -	0·9126	0·2992	1·2227	63·882	531·2
Dinner : meat, &c. -	2·1657	0·9073	6·0503	151·599	1937·7
Pudding and rice -	0·1765	0·3238	1·1282	12·355	365·2
Supper - - -	1·0401	0·4676	5·2867	72·807	1396·3
Total - -	5·2871	3·2379	18·9542	370·097	5867·0

The potential energy of this diet is

Albuminates, 5¼ ozs. - -	- 914·6683 foot tons.
Fats, 3¼ ozs. - - -	- 1223·9262 ,,
Carbo-hydrates and sugar - -	- 2603·8587 ,,
Total - - -	- 4742·4532 ,,

Allowing for internal work and animal heat—2,800 foot tons—we have a balance left of 1,942 foot tons of potential energy. It is calculated by Helmholtz that, out of the potential energy over and above what is supplied for the internal work and heat of the body *about* one fifth can be obtained as productive work. So that in this case we have about 400 foot tons of active work provided for in this diet, which is ample for the soldier during peace time.

I have some knowledge of Colonel Burnett's system, and his grasp of detail is really marvellous.

In calculating the soldier's diet hitherto, the nutritive value of bone has been omitted, and Colonel Burnett was one of the first to recognise this and to make use of the bones included in the daily ration.

He supplies each man with a good bowl of soup at his dinner, and also varies the dietary, so that the men have a constant change of really wholesome and nutritious food.

Concentrated Foods.

During the year the following samples of concentrated and preserved foods have been examined :—

1. "Soldiers' concentrated food" } invented by J. Moir Clark.
2. "Concentrated food" }
3. "Meat biscuits," invented by Spratt's Patent, Limited.
4. "Chocolate and cream."
5. "Coffee and milk."
6. "Cocoa and milk."
7. "Compressed extract of milk."
8. "Compressed cream milk."

The analyses and reports on each of these are as follows :—

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REPORT on a sample of "Soldiers' Concentrated Food," invention of J. Moir Clark, London. Sent in cylindrical tins $3\frac{3}{8}$ inches high and $2\frac{5}{8}$ inches in diameter. Weight of tin and contents 357 grammes; weight of tin alone 77 grammes. Net contents = 280 grammes, or 10 ounces, avoir.

Physical Characters.

Resembles potted meat, and has a strong smell of carrots. Taste agreeable, and was excellent when taken in the form of soup.

Chemical Analysis.

Albumen, indigestible	2·6250
,, digestible	10·0625
,, peptones	2·5237
Meat extracts, &c.	8·2325
Total albuminates	23·4487
Fat	14·7200
Non-nitrogenous matter, including carbo-hydrates	6·1219
Salts	1·8000
Total water-free food	46·0856
Moisture	53·9144
	100·0000

This is a nutritious and apparently palatable tinned food. Of the 23·5 per cent. total albuminoid matter, nearly 21 are useful and easily assimilable (as digestive albumen, peptones, and extract of meat), and only 2·6 indigestible. The addition of carrots gives an agreeable flavour. The alkalinity is equal to 0·459 per cent. of citrate of potash, or 0·288 per cent. of citric acid.

Quantity required for a Ration.

Though the composition of this food is excellent the amount supplied as a ration is inadequate.

The total net weight is 10 ozs. nearly. The quantity of the different classes of aliment or proximate principles supplied is therefore as follows:—

	Ozs.
Albuminates	2·3444
Fat	1·4720
Carbo-hydrates	0·6122
Salts	0·1800
Total water-free	4.6086
Moisture	5·3914
	10·0000

or about 165 grains of nitrogen and 1,110 of carbon.

If $1\frac{1}{4}$ lbs. of bread is supplied, the ration altogether would consist of —

Albuminates	3·9444
Fat	1·7720
Carbo-hydrates	10·6122
Salts	0·4400

or about 275 grains of nitrogen and 3,450 grains of carbon.

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From these data it appears that the amount proposed as a soldier's ration when supplemented with a full bread ration of 1¼ lbs., or its equivalent, is very deficient in each class of the alimentary principles.

If 16 ounces be taken of this "ration" with 1¼ lbs. of bread a fair ration is afforded, showing only a deficiency in carbo-hydrates.

It can hardly be said to be a "concentrated" food, as 16 ounces is bulky to carry, and this amount is only sufficient to maintain an average man without losing weight in a state of *rest*. He would require much more on field service.

REPORT on "Concentrated Food" prepared by J. Moir Clark, of Billiter Square, London. Contained in sardine tins $4\frac{7}{10}$ in. long, $3\frac{1}{8}$ in. wide, and $1\frac{1}{8}$ in. deep. Total weight of tin 407 grammes. Tin 100 grammes. Net contents = 307 grammes, or 10·8371 ounces.

Physical Characters.

Resembles potted meat; good smell and palatable taste.

Chemical Analyses.

Albumen, indigestible	2·9750
,, digestible	9·2850
,, peptones	2·1875
Meat extracts, &c.	9·7750
Total albuminates	24·2225
Fat	12·4622
Non-nitrogenous matter, including carbo-hydrates	3·4454
Salts	1·7933
Total water-free food	41·9234
Moisture	58·0766
	100·0000

The composition of this sample of "Soldiers' Concentrated Food" is very similar to that supplied in cylindrical tins, and the remarks made on it apply equally well in this case. It may, however, be noted that in the former sample there was 46 per cent. of water-free material, against 42 per cent. in this sample, which is, therefore, not more concentrated than before. The amount of meat extracts and basis is higher in this sample, 9·7750 against 8·2325 in the last sample. This is higher than the amount found in corned beef or in fresh meat, even of the best quality.

The weight of the net contents of this tin is 10·8 ounces, an increase of nearly one ounce on the former tin, but the amount is considerably below the quantity stated to be present, viz., 12 ounces.

The remarks as to *quantity* previously made apply, in the main, in the present instance. The increase in the meat extracts, so valuable for their stimulating properties, is an improvement, but they do not make up for a deficiency in other digestible nitrogenous material.

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REPORT on "Meat Biscuits," forwarded by Spratt's Patent Limited Co.; received in a wooden box containing nine biscuits. Each biscuit weighs 55·5 grammes, or 1·9594, (say 2 ozs.).

Chemical Analysis.

Albumen, indigestible	1·7500	
„ digestible	11·3750	
„ peptones	1·9687	14·0000
Meat extracts	0·6563	
Total albuminates	15·7500	
Fat	14·0900	
Non-nitrogenous matter, including carbo-hydrates	58·6850	
Salts	2·0200	
Total water-free	90·5450	
Moisture	9·4550	
	100·0000	

These biscuits are highly nutritious. Though they do not contain more albuminoid material than ordinary biscuits (15·75 as against 15·6 per cent. in the latter) in the case of these biscuits it is nearly all (14 per cent.) in a useful and digestible form, owing probably to its being largely of animal origin, instead of entirely from vegetable sources as in ordinary biscuits. The amount of fat is also large, thus rendering them a nutritious article of food. The taste is not agreeable, and this is one great disadvantage. As an occasional issue they would be valuable.

REPORT on samples of "Chocolate and Milk," "Coffee and Milk," and "Cocoa and Milk."

I. Sample of "*Chocolate and Milk*" prepared by the Swiss Milk Co., and called Dr. Otto Krueger's Milk Chocolate.

An oblong tablet, divided by marks into six portions, each weighing about 15 grammes (rather more than half an ounce).

Composition.

Moisture	5·5393	
Fat	29·1778	
Extractive matters, including sugar	37·8000	
Ash, insoluble	3·6	5·0000
„ soluble	1·4	
Other substances	22·4829	
	100·0000	

Microscopic Examination.

Shows pieces of cellulose and vegetable tissue, but no definite structures.

The solid cake has a peculiar, slightly saltish, taste, in addition to that of chocolate; when prepared with boiling water it makes a very palatable cup of chocolate, without needing any addition of milk or sugar.

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Opinion.

This appears to be a very good and convenient form of prepared cocoa. The amount of fat present is larger than in many similar preparations, and there is little loss from moisture, so that there is considerable nutritive value in a small space. Requiring no addition of milk or sugar, it is readily prepared, and is palatable.

II. Sample of "*Coffee and Milk*" prepared by the Swiss Milk Co., and called Dr. Otto Krueger's Coffee and Milk.

Contained in a cylindrical tin, in two small linen bags, each holding 39·4 grammes (about 1⅓ oz.) of a brown powder.

Composition.

Moisture	13·5600
Fat	6·1500
Extractive matters, including sugar	39·6500
Ash	4·9300
Other substances	35·7100
	100·0000

Microscopic Examination.

Shows pieces of cellulose and vegetable tissue, but no definite structures. There is apparently no chicory.

When prepared as coffee, it makes an infusion of somewhat disagreeable taste, which (in the opinion of five persons who tasted it) in no way resembled coffee; it required the addition of sugar.

Opinion.

The amount of fat is small in this prepared coffee. The fragrance, agreeable taste, and stimulating properties of coffee seem to be entirely absent.

III. Sample of Barnes and Co.'s "Cocoa and Condensed Milk."

A brown paste, with fairly palatable sweet taste, contained in cylindrical tin weighing 480 grammes, or 1 lb. cocoa and milk (453 grammes) net.

Composition.

Moisture	23·5814
Fat	13·6702
Extractives, including sugar	48·2087
Ash	1·3300
Other substances	13·2097
	100·0000

Prepared with boiling water, two teaspoonfuls to a half-pint, it makes a palatable cup of cocoa, without requiring addition of milk or sugar; but with less fragrance and flavour of cocoa than in Krueger's chocolate and milk. (The sample analysed had, however, been three years in store.)

Opinion.

Though a palatable and fairly good preparation, when compared with Krueger's milk chocolate, it is seen that this latter has the advantage both

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as regards amount of fat and freedom from moisture. The larger amount of extractive matter in Barnes' cocoa is probably mostly sugar. Probably two thirds of a pound of Krueger's would be equal to one pound of Barnes' cocoa in nutritive value.

REPORT on samples of "Compressed Extract of Milk" and "Compressed Cream Milk" prepared by the Swiss Milk Co., St. Gall, Switzerland.

I. "*Pure Compressed Extract of Milk.*"

A white powder, slightly tinged with yellow, contained in cylindrical tin weighing 166 grammes gross; net weight of contents 122 grammes (rather more than ¼ lb.).

Composition.

	(1.) As Powder.	(2.) Diluted with 6 parts Distilled Water.	(3.) Diluted with 10 parts Water.	(4.) Skim Milk.
Fat	1·8730	0·3122	0·1873	0·46
Lactin	55·5833	9·2638	5·5583	5·34
Casein, &c.	34·4837	5·7473	3·4484	3·37
Salts	7·3500	1·2250	0·7350	0·72
Total water-free	99·2900	16·5483	9·9290	9·89
Water	·7100	83·4517	90·0710	90·11
	100·0000	100·0000	100·0000	100·00
Solids not fat	97·4170	16·2361	9·7417	9·43
Sp. gr. at 64° F.	—	1053·5	1032	—

Microscopic Appearances.

Oil globules and very minute granules.

Opinion.

The printed directions accompanying this preparation state that "for general house and culinary purposes" from 6–10 parts of water are to be added, and "for feeding infants" 12–15 parts are to be added. The composition of skim-milk according to W. Fleischmann, as quoted in Wynter Blyth's "Foods; their Composition and Analysis," p. 277, is shown in column four of the above table; and from a comparison of this with column three, it is seen that there is an almost exact agreement between skim-milk and this preparation when diluted with 10 parts water, except that there is even less fat in the latter than in skim-milk. The remaining constituents are in fairly normal proportion. The amount of salts is exactly normal. No cane sugar has been added. The specific gravity is about the normal specific gravity of milk that has been deprived of its cream. The degree of condensation appears to be to one tenth of the original weight, instead of about one third, as is usually the case in condensed milks, the water having been almost entirely got rid of; it would therefore be a most valuable preparation, if the chief nutritive constituent, the milk-fat, had not been abstracted.

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II. "*Pure Compressed Cream Milk.*"

A yellowish white powder contained in cylindrical tin weighing 183 grammes gross, net weight 139 grammes.

Composition.

	As Powder.	Diluted with seven parts Water.
Fat	32·5999	4·5658
Lactin	47·6238	6·6700
Casein, &c.	12·8413	1·7985
Salts	5·4000	·7563
Total water-free	98·4650	13·7906
Water	1·5350	86·2094
	100·0000	100·0000

Microscopic Appearances.

Oil globules and very minute granules.

Opinion.

When made up as directed, in the proportion of one part to sevenparts by weight of water, this contains total solid matter very slightly in excess of ordinary good milk, viz., 13·79 instead of 13·3 per cent. The milk-fat and salts are slightly, and the milk sugar considerably, above the proportions present in average good milk, while the casein and albuminoids are in deficiency. Cream varies so much in its composition that it is difficult to state a normal percentage of its constituents. Of 36 analyses, quoted by Mr. Wynter Blyth (*op. cit.*, p. 276) the minimum amount of milk-fat present was 8·17, the maximum 70·2, and the mean 25·72. Against these figures the "pure compressed cream milk" shows 4·56 per cent.

Conclusion.

Both these preparations differ very considerably from what they purport to be; the "compressed extract of milk" is only skim-milk, and the "compressed cream milk" is little better than ordinary milk. If an infant were fed on the former, it would be starved from want of fat, and under the circumstances in which milk is required for the soldier, on active service or in hospital, this constituent, the fat, is so much the most important that its deficiency in these preparations deprives them of nearly all their value, unless the "cream milk" be treated as ordinary milk.

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REPORT on a sample of "*Preservitas.*" (A saline compound proposed for the preservation of milk, butter, fish, meat, &c. Sent by the "Preservitas" Company.)

I. *Physical Characters.*

A dull white powdery substance, with saline taste, almost completely soluble in water.

II. *Qualitative Chemical Composition.*

Moisture	41·150
Ash	48·875
Loss	9·975
	100·000

The bases present consist of potash and soda, and the acidulous radicals are hydrochloric, sulphuric, nitric, and boracic acids.

Quantitative examination showed 3·947 per cent. of radical chlorine = 6·512 sodium chloride, and ·68 per cent. SO_4 = 1·0058 sodium sulphate. There is a considerable amount of boracic acid, probably in combination with sodium, as biborate of soda, or borax.

III. *Practical Application with Milk.*

A 20 per cent. solution of Preservitas was made, by dissolving 20 grammes of the powder in 100 cubic centimetres of distilled water. Of this the directions state that half a pint is to be added to 16 gallons of milk, that is, in the proportion of 1 to 256. To 250 cubic centimetres of fresh milk were added respectively 1, 2, 3, 5 and 10 cubic centimetres of this 20 per cent. solution, and the condition of the milk noted on successive days as shown in Table A. The samples were kept in porcelain dishes, exposed to air, but protected from dust.

The observations were taken between the 27th February and 17th March. A change of weather and considerable increase of temperature took place on 6th March; the average temperature in the laboratory before this date being 50° F., and after 6th March 60° F. (approximately). The table shows that when treated with Preservitas solution in the proportions directed, milk remained sweet for nine days, while a sample of milk, untreated, became perceptibly, but not extremely, sour in the same time.

IV. *Practical Application with Meat.*

The 20 per cent. solution was, according to the directions, applied with a brush to samples of meat, which were then allowed to dry in a current of air, and afterwards placed in porcelain dishes exposed to air, but protected from dust. The observations were taken between the 3rd and 21st March. The temperature of the laboratory averaging 60° F. approximately, except for the first three days, when it was 50° F. The results of the observations are shown in Table B., from which it appears that the difference between portions of meat and fat treated with the solution as directed, and similar portions untreated, was not very striking; the growth of mould seemed delayed. Meat remained quite sweet for six days both with and without treatment.

V. *Conclusion.*

A complete quantitative chemical examination was not practicable in this case. The analysis, so far as it went, showed that a considerable amount of boracic acid was present, probably in the form of biborate of soda (or borax), to which the preservative powers of the substance are probably chiefly due (though its presence is denied by implication in the prospectus). It acted very well indeed in the case of milk, and its use might be very beneficial for this purpose, especially in warm climates. The small quantities required to be used would not be deleterious in any way. In the case of meat the effect was certainly not very marked, and it would appear that its use in this way would be much more limited.

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TABLE A.

250 cc. Milk treated with.	(a) 1 cc. Sol.	(b) 2 cc.	(c) 3 cc.	(d) 5 cc.	(e) 10 cc.	(o) Original Milk.	Remarks.
After 3 days -	All samples perfectly sweet to smell.						Cold weather.
	Sweet to taste.	Sweet to taste.	Sweet to taste.	Sweet to taste.	Slight alkaline taste.	Very slight taste of turning.	
After 4 days -	All samples perfectly sweet to smell.						—
	Sweet to taste.	Sweet to taste.	Sweet to taste.	Sweet to taste.	Sweet to taste.	Slight increase in taste.	
After 5 days -	No change.	No change.	No change.	No change.	No change.	No change.	—
After 7 days -	No change.	No change.	No change.	No change.	No change.	Slight increase in taste.	—
After 8 days -	No change.	No change.	No change.	No change.	No change.	Perceptibly, but not extremely sour.	—
After 10 days -	Slight cheesy smell, and slight bitter taste.	No smell. Slight bitter taste.	No smell; no taste.	No smell; no taste.	No smell; no taste.	Extremely sour and stinking.	Warmer weather.
After 11 days -	Sour smell.	Slight peculiar smell.	Slight peculiar smell.	Slight peculiar smell.	Slight peculiar smell.	Very stinking.	—
After 13 days -	Very stinking, with bubbles of gas.	Not sour to taste.	Bitter taste.	Not sour to taste.	Not sour to taste.	Very stinking, with bubbles of gas.	—
After 19 days -	All samples stinking and mouldy.						—

TABLE B.

—	I. A Piece of Meat Untreated.	II. A Piece of Fat Untreated.	III. Meat.	IV. Fat.	V. Meat.	VI. Meat and Fat.
			Brushed over with 20 per cent. solution and dried.			
After 5 days -	No change except drying of all samples.					
After 8 days -	Mouldy	—	Mouldy	—	—	—
After 14 days -	Very mouldy; not smelling.	No change	Mouldy, not smelling.	Smelling slightly.	Rather mouldy and smelling.	Rather Mouldy and smelling.
After 18 days -	Very mouldy; not much smell.	No change	Very mouldy.	No change	Very mouldy.	Very mouldy.

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Butter.

One sample of butter, from the Hospital Stores, Netley, was sent for analysis.

It contained 11·5 per cent. of water and 87·57 per cent. of fixed fatty acids. This was a sample of genuine butter, and the amount of water was not excessive.

Wine.

Eleven samples of wine were analysed during the year. The colour was tested by small cubes of gelatine immersed in the wine and allowed to stand for 24 and 36 hours.

The colouring matter of the grape dialyses very slowly, only the external surface, on section, being tinged or stained; while foreign colouring matters penetrate rapidly through the whole substance of the gelatine.

Three of the samples examined were very good; the remaining eight were of an inferior description. Some of the latter appeared to have had colouring matter added and to have been fortified with coarse spirit.

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Analysis of Wine.

Description of Wine.	Physical Characters.	Specific Gravity of Wine.	Specific Gravity of Distillate.	Specific Gravity of Extract.	Alcohol per Cent. Vol. in Volume.	Alcohol per Cent. under Proof.	Acidity in Grains per Ounce.			Sugar, Grape, and Fruit, in Grains per Ounce.	Total solid Residue per Cent.	Ash per Cent.	Remarks.
							Total as Tartaric Acid.	Fixed as Tartaric Acid.	Volatile as Acetic Acid.				
Port - -	Slightly turbid; very good bouquet; taste good; crust on bottle.	1006·837	·975376	1033·617	21·19	62·87	1·7056	1·5216	0·1212	23·2710	9·2780	0·2500	Very good.
Port - -	Very slightly turbid; large crust on bottle; bouquet and taste very good.	1002·269	·975784	1026·854	20·24	64·53	1·8698	1·6400	0·1837	11·0000	7·8420	0·2240	Very good.
Port - - (Sandeman's.)	Clear; in good condition; fragrant and full-bodied.	1005·787	·973967	1032·262	22·18	61·13	1·8040	1·6400	0·1312	26·6765	9·2436	0·2600	An excellent wine.
Port - - "R. V. Y. Port."	Tawny; taste hot. Others pungent; no fragrance.	1012·046	·974746	1037·471	21·69	62·00	1·6728	1·4760	0·1575	33·9474	11·2000	0·2840	An inferior wine.
Tarragona - -	Very dark colour; no body; acid smell and taste.	1007·107	·976474	1030·793	19·78	65·34	2·1320	1·8040	0·2625	23·3546	7·6400	0·3240	Very inferior wine.
Tarragona - -	Good colour; full-bodied; no crust on bottle; rather sweet.	1011·420	·977135	1032·983	19·28	66·20	2·2632	1·9024	0·2887	21·2375	8·6100	0·3100	A fair sample of Tarragona wine.

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Analysis of Wine—*continued.*

Description of Wine.	Physical Characters.	Specific Gravity of Wine.	Specific Gravity of Distillate.	Specific Gravity of Extract.	Alcohol per Cent. Vol. in Volume.	Alcohol per Cent. under Proof.	Acidity in Grains per Ounce.			Sugar, Grape, and Fruit in Grains per Ounce.	Total Solid Residue per Cent.	Ash per Cent.	Remarks.
							Total as Tartaric Acid.	Fixed as Tartaric Acid.	Volatile as Acetic Acid.				
Tarragona - -	Clear; dark; no bouquet; very litte body; taste sweet and thin.	1016·319	·976899	1038·687	19·28	66·20	1·9600	1·6628	0·2362	36·3050	8·9410	0·3210	Very inferior wine; fortified and sweetened; unfit for hospital use.
Tarragona - -	Very clear; no crust; thin; no body; taste sweet; sour smell, not of wine.	1025·074	·977372	1047·858	18·78	67·10	1·5696	1·5416	0·2625	29·1665	12·6080	0·3300	Very inferior wine; unfit for hospital use.
Tarragona - -	Clear; no crust; thin; poor wine; taste sweet; pungent smell.	1025·376	·977252	1047·257	19·28	66·20	2·0336	1·7712	0·2100	27·6631	12·0000	0·3100	Very inferior wine; unfit for hospital use.
Tarragona - -	Very thin; little body; sweet; very little colour.	1008·169	·977651	1031·598	18·78	67·10	1·9352	1·6072	0·2625	19·7076	7·6800	0·3240	Very inferior wine.
Tarragona - -	Thin wine, with little body; acid smell and taste, but not excessive.	1010·781	·976491	1034·133	19·78	65·34	1·7368	1·5088	0·2625	19·7076	8·5200	0·3400	An inferior wine.

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Soil.

Samples of soil were taken from under the flooring of several huts at Aldershot, which had been occupied for many years, and sent for examination.

The analysis in the *first* series showed that all contained an excess of organic matter, and in those cases where the organic impurity was large, as estimated by chemical analysis, the number of organisms developed by cultivation were also numerous.

In the *second* series, the results between these different methods of examination are not so characteristic, as will be seen in the case of the sample of soil from No. 6 Hut, D Lines, which analysis shows to contain an excess of organic impurity, but cultivation experiments gave little or no results.

EXAMINATION of EIGHT SAMPLES of EARTH received from ALDERSHOT. (First Series.)

Sources of samples of soil :—

1. No. 10, Soldier's Hut, C Lines.
2. No. 2, Married Quarters, C Lines.
3. No. 15 Hut, B Lines.
4. No. 15 Hut, D Lines.
5. No. 6 Hut, B Lines.
6. No. 4 Hut, F Lines.
7. No. 2 Hut, C Lines.
8. No. 15 Hut, P Lines.

One pound of each sample was added to 2½ litres of distilled water and allowed to stand for 24 hours, during which time it was frequently shaken up. It was then allowed to stand for one week to allow the sediment to subside. All the samples, except No. 2 and No. 7, which were perfectly clean, had to be filtered.

Physical Characters.

—	1.	2.	3.	4.	5.	6.	7.	8.
Colour -	Yellow -	None -	Yellow -	Yellow -	Yellow -	Yellow -	None -	Yellow
Turbidity -	Slight -	None -	Slight -	Slight -	Slight -	Slight -	None -	Slight
Lustre -	None -	Good -	None -	None -	None -	None -	Good -	None
Taste -	Earthy all the samples.							
Smell -	Musty all the samples.							

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Qualitative Analyses.

Constituents.	1.	2.	3.	4.	5.	6.	7.	8.
Lime	Very large.	Large.	Very large.	Very large.	Large.	Very large.	Large.	Very large.
Magnesia	None in any of the samples.							
Chlorine	Very large.	Present.	Very large.	Very large.	Large.	Present.	Large.	Very large.
Sulphuric acid.	Large in all the samples.							
Phosphoric acid.	Trace in all the samples.							
Ammonia	Present.	Present.	Present.	Present.	Present.	Trace.	Trace.	Present.
Nitric acid	Present in all the samples.							
Nitrous acid	Present.	None.	Present.	Present.	None.	None.	None.	Present.
Organic matter.	Present in large quantity in all the samples.							
Metals	None in any of the samples.							

Hardness (parts per 100,000).

Total	30·0	29·0	41·5	27·5	9·0	16·5	19·0	46·5
Fixed	23·0	22·0	35·0	24·0	7·0	14·0	12·5	43·0
Removable	7·0	7·0	6·5	3·5	2·0	2·5	6·5	3·5

Quantitative Analyses (parts per 100,000).

Total oxygen.	0·5640	0·3440	0·6880	0·7480	0·2200	0·2160	0·2160	0·8000
Fixed oxygen.	0·4840	0·3660	0·5600	0·6120	0·2080	0·2080	0·2080	0·7040
Nitrous acid	0·2300	0·0230	0·3600	0·3910	0·0343	0·030	0·0230	0·2760
Free ammonia.	0·1440	0·1984	0·2520	0·0496	0·1984	0·0292	0·0160	0·2176
Albuminoid ammonia.	0·0780	0·0422	0·1290	0·0624	0·0345	0·0321	1·3200	0·2080
Nitric acid	2·2280	1·1443	2·6280	2·5744	1·6561	2·2330	0·9463	3·0357
Total nitrogen.	0·5729	0·2648	0·7053	0·7031	0·4788	0·5112	0·2206	0·7693
Volatile matter.	20·2000	19·5000	20·4500	14·2000	7·1000	14·2000	10·8500	20·7500
Chlorine	23·8000	2·6000	24·9000	8·5000	2·7000	13·1000	7·8000	21·1000
Calcium carb.	4·6666	4·6666	4·3333	1·3333	1·6666	2·3333	4·3330	2·3333
Fixed hd. salts.	23·0000	22·0000	35·0000	7·0000	14·0000	24·0000	12·5000	43·0000
Other subs.	35·6334	47·2334	28·1167	30·2667	42·3334	44·8667	40·8167	65·1167
Total solids	107·3000	96·0000	102·0300	61·3000	67·8000	102·0500	76·3000	152·3000

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Bacterial Cultivation Experiments with Samples of Soil from Aldershot. (First Series.)

A portion of soil was well shaken up with distilled water and allowed to settle; 1 cub. cent. of the water was then added to a tube of nutrient gelatine, as described in Report on Bacterial Cultivations in Water.

——	No. 1.	No. 2.	No. 3.	No. 4.	No. 5.
After two days.	—	—	Innumerable dots.	—	—
After three days.	—	—	—	—	Innumerable dots.
After four days.	Innumerable dots.	One mould -	Nearly all liquefied.	Some liquefaction.	Much liquefaction; bad smell.
After six days.	Some liquefaction; many moulds.	One mould -	Nearly all liquefied.	Some liquefaction.	Much liquefaction; bad smell.
After eleven days.	—	—	Nearly all liquefied; very bad smell.	Much liquefaction; very bad smell.	Nearly all liquefied; very bad smell.
After thirteen days.	A mass of colonies and moulds; hardly any liquefaction.	Some liquefaction and moulds.	—	—	—

Note.—The average temperature of the laboratory was about 60° F.
All these samples of soil contained an excess of organic impurity.

Examination of Samples of Earth from Aldershot. (Second Series.)

Source of Sample.	Analysis of Soil.			Analysis of Soluble Constituents of Soil, as in first Series.				
	Moisture per Cent.	Organic Matter per Cent.	Mineral Matter per Cent.	Total Solids, parts per 100,000.	Volatile Solids, parts per 100,000.	Chlorine, parts per 100,000.	Free Ammonia, parts per 100,000.	Albuminoid Ammonia, parts per 100,000.
No. 19 Hut, B Lines -	9·83	2·60	87·57	42·3	14·0	9·2	None	0·2048
„ 6 „ D „ -	0·07	4·01	87·92	99·4	33·5	17·4	0·2460	0·0840
„ 22 „ H „ -	13·64	3·29	83·07	82·9	29·5	12·8	0·0576	0·1680
„ 23 „ P „ -	6·54	2·90	95·60	87·5	25·0	17·0	0·3456	0·0780
„ 4 „ R „ -	9·81	4·68	85·51	39·0	14·0	4·5	0·0512	0·0792
„ 1 „ W „ -	19·63	4·21	76·16	81·0	32·0	14·0	0·1328	0·0528
Standard sample of clean earth.	15·19	3·95	80·85	13·8	3·8	2·0	0·0528	0·1680

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BACTERIAL CULTIVATIONS IN SOILS FROM ALDERSHOT.—(Second Series.)

	No. I. 19 B.	No. II. 6 D.	No. III. 22 H.	No. IV. 23 P.	No. V. 4 R.	No. VI. 1 W.	No. VII. Clean Earth.
After four days	—	—	—	Innumerable dots.	Nil.	Nil.	—
After five days	Nil.	Some colonies.	Nil.	—	—	—	Numerous colonies.
After seven days	—	—	—	Innumerable dots and colonies, some liquefaction.	Some colonies.	Nil.	Some liquefaction, bad smell.
After eight days	Nil.	Numerous colonies, some liquefaction.	Some colonies.	—	—	—	—
After nine days	—	—	—	Very extensive liquefaction.	Some colonies.	Nil.	Liquefaction increased.
After ten days	Three dots, one mould.	Liquefaction increased.	Some liquefaction.	—	—	—	—
After thirteen days	—	—	—	—	—	—	Considerable liquefaction.
After twenty-eight days.	No liquefaction.	Nearly all liquefied.	Considerable liquefaction.	—	—	—	—
After thirty days	—	—	—	Nearly all liquefied.	Some liquefaction.	One colony, one mould.	—

Note.—The temperature in the laboratory varied between about 55° F. and 60° F.

In each case one pound of soil was shaken up with 2½ litres of distilled water, left to stand for 18 days, then filtered through filter paper. One cub. cent. of the water was added to a tube of nutrient gelatine, as described in the Report on Bacterial Cultivations in Water.

1. The samples of soil were received each in a tin case, and appear to have been very carefully selected.
2. The points which seem to require special notice are as follows:—
   (*a.*) The large amount of chlorine over what exists in the external soil, a sample of which was sent for comparison; and
   (*b.*) The excess of free ammonia in some samples coincident with the increase in chlorine.
3. The evident contamination of the soil beneath the huts points to the insufficiency of the surface drainage and to the percolation of organic impurities.
4. What influence this has in producing or propagating disease is uncertain; but there can be no question of the necessity for cleanliness as regards drainage and for free ventilation beneath the flooring of huts built on such a site.

Further investigations and analyses of soil are much required, and as opportunity offers I hope to continue them.

I cannot conclude this Report without acknowledging the assistance given to me by my colleague, Surgeon A. M. Davies, M.S., Assistant Professor of Hygiene. Previous to my return from India last year, Mr. Davies carried on the entire work in our laboratory, and made many of the analyses herein recorded.

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APPENDIX No. II.

LIST OF OPERATIONS PERFORMED AT THE ROYAL VICTORIA HOSPITAL NETLEY, DURING THE YEAR 1888, WITH SHORT ABSTRACTS OF THE MOST IMPORTANT CASES.

By BRIGADE-SURGEON C. H. Y. GODWIN, Medical Staff, Assistant Professor of Military Surgery.

Operations.	Number of Cases.	Diseases.	Results.				Remarks.
			Completely successful.	Partially successful.	Failed.	Died.	
HEAD AND NECK.							
I. Excision -	1	Cyst sebaceous of left cheek.	1	—	—	—	
II. „ -	1	Cystic tumour of neck.	1	—	—	—	
THORAX.							
I. Estlander's operation, thoraco-plasty.	2	Empyema, general	—	2	—	—	
II. Thoraco-plasty	1	Localised empyema.	1	—	—	—	
ABDOMEN.							
I. Attempt to reach a deep abscess of kidney.	1	Renal abscess -	—	—	1	—	
II. Nephro-lithotomy.	1	Renal calculus -	1	—	—	—	
III. Opened by incision external to quadratus lumborum muscle.	1	Iliac abscess -	—	1	—	—	
UPPER EXTREMITY.							
I. Sinus leading to diseased humerus opened up and carious bone removed by Volkman spoon.	1	Gunshot wound of arm.	1	—	—	—	
II. Ditto ditto.	1	Periostitis of humerus.	—	1	—	—	
III. Removal of diseased bone.	1	Necrosis of upper extremity of humerus after excision of head.	1	—	—	—	

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Operations.	Number of Cases.	Diseases.	Results.				Remarks.
			Completely successful.	Partially successful.	Failed.	Died.	
Upper Extremity— *cont.*							
IV. Sinus leading through axilla beneath pectoral, muscles opened up and unhealthy tissue removed by Volkmann's spoon.	1	Result of abscess between the pectoralis major and minor.	1	—	—	—	
V. Adhesions broken down.	1	Ankyloses of both elbows.	—	1	—	—	
VI. Sinus leading to 2nd metacarpal bone of left hand opened up, and diseased bone scraped out.	1	Caries of 2nd metacarpal bone of left hand.	—	1	—	—	
VII. Ends of bone resected and wired.	1	Ununited fracture of humerus. Gunshot wound.	—	—	1	—	
Lower Extremity.							
I. Sequestrotomy	1	Gunshot fracture of femur.	1	—	—	—	
II. Amputation of thigh, lower third.	1	Strumous disease of knee joint.	1	—	—	—	
III. Forcible flexion	1	Ankylosis of knee	—	1	—	—	
IV. Cautery paquelins.	1	Lupus - -	—	1	—	—	
V. Sinus connected with 5th metatarsal bone opened out, and diseased bone removed.	2	Caries of base of 5th metatarsal bone.	—	1	1	—	
VI. Sinus opened out and diseased bone removed. Excision of cuboid bone.	1	Caries of tarsus -	—	—	1	—	
Genito-Urinary.							
I. Castration -	1	Tubercular disease of testicle.	1	—	—	—	
II. Plastic operation after phagadena.	1	Stricture of urethra and phimosis.	1	—	—	—	
Rectum.							
I. By ligature -	3	Internal piles -	3	—	—	—	
II. By division of sphincter and collateral sinuses.	4	Fistula in ano -	3	1	—	—	
Arteries.							
I. Ligature of common carotid.	1	Sarcoma of pharynx.	—	—	—	1	
Veins.							
I. Injection of carbolic acid.	4	Varix - -	4	—	—	—	
Totals - -	36		21	10	4	1	

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I add to the above table a short account of the more important cases.-

Amputation of the thigh in lower third.

Private E——, aged 25, 2nd Devonshire Regiment, was admitted into the Royal Victoria Hospital at Netley on the 25th November 1887, having been invalided from India on account of a diseased knee. He gave the following history: In 1885 he fell and struck the knee on the inner condyle, swelling and pain in the joint followed. Some months after this accident the leg became drawn up, the joint continuing all this time swollen and painful, and this led to its being aspirated. In the hot weather of 1886 an abscess formed near, but a little above, the inner aspect of the joint which was opened. In September 1887 he was invalided home on account of this knee joint. On arrival at this hospital he had a swelling noticeable over the inner aspect of the right knee, and a sinus leading to bare bone on the posterior aspect of the femur in the popliteal space. On the 19th of November acute suppuration took place within the joint. This was met by a free incision on either side of the patella which gave exit to a large amount of pus. His condition at this time was one of extreme gravity, the temperature was high, 100·6; he slept badly, he was constantly sick, had diarrhœa, with great depression. On the 2nd March, after consultation, it was decided to amputate through the lower third of the thigh. This was accordingly carried out by a long anterior skin flap, short posterior one, and by a circular cut through the muscles; the soft parts were much riddled by sinuses, which were freely opened up and washed out with a 40 gr. solution of chloride of zinc after a good scraping with a Volkmann spoon. The wound slowly healed, and he was discharged on the 27th August with an artificial limb. The lower end of the femur was found to be extensively diseased, as this history of the case led us to expect, the stress of the caries seeming to have fallen upon the inner condyle, where he received the original injury.

Nephro-lithotomy.

Sergeant E——, aged 26, 2nd Manchester Regiment, had enjoyed good health up to October 1886, when he noticed that he began to micturate very frequently at night, and that the water was very highly coloured; pain was also felt in the right loin, but it was not constant; it used to come on especially after any sharp exertion, and was of a cutting rather than of an aching character. About Christmas of this year he had an attack of hæmaturia. In the early part of 1887 the desire to pass water became more urgent, and the urine became thicker and darker in colour. In July 1887 a perineal abscess formed, and when opened gave exit to a small calculus. In the autumn an abscess pointed in the right loin which was opened; the urine at this time is said to have contained pus. In October he was invalided home, and arrived at Netley in March 1888. He then was pale and thin, with a bad appetite, sleepless at night, constant attempts at micturition, much pain in the right lumbar region, radiating across the abdomen and down the course of the ureter, but not felt either in the penis or testicle. On examining the right lumbar region a fistulous opening was seen in the midaxillary line, about 4 inches above the crest of the ilium, into which a probe passed for some 6 or 7 inches, and it was said that probing often caused bloody urine. The urine had a sp. gr. 1016, high coloured with a slight sediment, and contained albumen, due to the pus in it. It was considered that this abscess was due to a renal calculus. On July 14th an attempt was made to reach the abscess by the ordinary incision between the last rib and the crest of the ilium, but after dissecting through the walls of the abdomen the parts behind the peritoneum were found to be so dense and matted together by old inflammation that no abscess cavity could be reached; so the operation was not proceeded with, and the wound was closed and allowed to heal. In November another attempt was made to reach the abscess, and, if possible, the suspected stone. In this operation the sinus was followed up; it led between the 10th and 11th ribs, which were so close together as to prevent the passage of the finger. A piece of the 11th rib was accordingly removed when the kidney was easily reached, a large abscess was discovered which occupied the greater part of the kidney. After some difficulty a calculus was found, and removed by means of the lithotomy scoop. A good deal of oozing followed the operation, which required careful plugging to check it, and this had to be maintained for some 8 or 10 days. The wound healed readily enough, but still a sinus has been left which continues to discharge a whitish pus; no urine escapes through this passage.

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The calculus removed weighed 166 grains and consisted of oxalate of lime.

Thoraco-plasty, or Lietevant-Estlander's operation.

Sergeant B——, aged 27, 2nd Dorset Regiment, was admitted in the Royal Victoria Hospital, Netley, on the 6th July 1888, with empyema of the right side of the chest. He gave the following history: He had always had good health up to November 1883; after some exposure, when stationed at Dorchester, he contracted pleuro-pneumonia. After a long illness he returned to duty, but always suffered from cough and shortness of breath. He continued at duty until June 1887, when he complained of pain in the right chest and dyspnœa, and noticed that his right chest appeared distended, and did not move freely with the opposite side. At this time an aspirator was used between the 7th and 8th ribs on the posterior aspect of the chest when 86 ozs. of pus were drawn off. A few days later an incision was made in this situation, and 96 ozs. of pus were evacuated. This wound continued to discharge until the abscess pointed and burst in the epigastric region one inch below and to the right of ziphoid cartilage. His condition was now one of steady retrocession, and it was thought advisable to transfer him to Netley for further treatment. On his admission he was found to be much emaciated, with a sallow, waxy look, a hectic flush on either cheek, and the fingers were clubbed. On auscultation breathing sounds could be heard in the right chest, but they were distant. Left side appeared normal. The right side of the chest is markedly flattened and does not move; the pulse was full, rapid, hard, 100 per minute. On the front of the body in epigastric region there is a wound with a sinus at its upper and outer angle which discharges a sanious pus; posteriorly in the lumbar region there is a large ulcer whose upper margin is on a level with the 11th rib, from the upper margin of which is a sinus leading upwards, and discharges slightly. The urine was pale in colour, slightly turbid, neutral in reaction, with a very faint trace of albumen. His condition was one of extreme gravity, and it was evident that there was a collection of pus which did not find a free exit. Having in view the operation recommended by Lietevant-Estlander, of Helsingfors, it was settled in consultation that an attempt should be made to remedy by it the state of things in this case. On July 10th, 1888, chloroform having been administered, the anterior sinus was opened up by an incision made over the 7th rib, the soft parts having been removed and the periosteum cleared off, a piece of the rib of 2 inches in length was removed, and the greatly thickened pleura incised and cut away; it was then seen that the whole pleura cavity of this side was engaged; the lung was seen tightly and firmly bound down by dense connective tissue, and the parietal pleura was immensely thickened and suppurating from its whole surface. The original incision was now extended by another at right angles to it at its anterior extremity, and a flap of skin was then turned up when a portion of the 6th and 5th ribs were likewise removed and the periosteum and thickened pleura were cut away, thus leaving a large gap; no hæmorrhage attended this cutting away of diseased pleura. The skin flap was brought back again over the large opening and united by sutures with the opposite edges of skin, except when a drainage tube was inserted. The skin wound healed rapidly by first intention; there was a great diminution of discharge, and the chest walls gradually fell in; he improved in appearance, gained flesh, and became quite strong. On October 12th the upper part of the chest had fallen in, and all the retraction that was possible having taken place, it had the effect of leaving the 8th and 9th ribs standing out like buttresses. It was thought necessary, therefore, to break down these bony arches; so, chloroform having been given, a straight incision was made over the 8th rib, the sides of the wound were retracted, and the periosteum stripped from off both ribs, and the parts thus exposed were resected; but the pleura and periosteum were not cut away in this instance. The wound healed up very quickly, and since then the lower part of the chest has fallen in considerably. A fistulous opening, however, still remains from which a very little discharge is still kept up, but he has improved in general health and is able to get up, dress, and walk about, and would be able to follow some light employment.

By this operation the great cavity has been nearly obliterated, and though it was impossible to bring the lung back out of the costo-vertebral groove, the resection of the ribs has permitted the chest wall to close in upon the lung,

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so that the opposite sides may come in contact and thus obliterate the cavity by granulation tissue. In this case, however, a fistulous opening still remains; and as his constitution is sound he has been enabled to recover his health to a remarkable extent.

In the first operation the periosteum and pleura were described as having been cut away, but in the second this was not done. But it would have have been better if it had been, for in the situation of the first operation there has been no attempt at reproduction of bone, but in the second there is, and it is difficult to trace where the sections of ribs were made. In another case, therefore, I would always remove the periosteum and pleura after the resection of the ribs.

Resection of rib.

Private S——, aged 20, 1st Royal Fusiliers, left England for Bombay in the winter of 1887–88, and on the voyage is said to have contracted pneumonia of the bases of both lungs. On his arrival at Bombay he was sent to the Colaba hospital when, owing to the hectic temperature and bulging of the right side, empyema was suspected. An aspirator was used and drew off 20 ozs. of pus. Subsequently the abscess pointed higher up and somewhat posteriorly, where an opening was made which discharged freely. On the 22nd February 1888 he was invalided home, and arrived at Netley on the 12th of April. On admission into this hospital it was noted that he had a sinus in the right chest walls posteriorly, which discharged somewhat freely; there was a marked dulness from apex to base of right chest, both front and back, with absence of voice and breath sounds, cough was excessive, the temperature was of a hectic character, and he was wasting. The cough was attended with a muco-purulent expectoration. In May an abscess pointed between the 2nd and 3rd right costal cartilages which was opened, and on the 2nd June another pointed between the 3rd and 4th ribs anteriorly, which was also opened. At this date the cough was most irritable and the expectoration profuse and purulent. In July the openings in front of the chest had closed, but the posterior one continued to discharge; the patient vomited constantly; no air seemed to enter the right lung except quite at its apex, and when the posterior opening did not discharge freely all the constitutional symptoms were exaggerated, and the expectoration of purulent matter was greatly increased. On the 8th of August he was transferred to the surgical division, when it was noted that the respiratory sounds were almost *nil* posteriorly. A small sinus was seen between the 6th and 7th ribs posteriorly, from which when he coughed pus was spirted out. On the right side anteriorly were seen three scars. He expectorated a large quantity of purulent matter, he was constantly sick, he was very thin, and seemed quite exhausted. After consultation it was agreed that his only chance was in getting a free discharge for the pus that was evidently pent up in the right chest. With this view, chloroform having been given, the sinus between the 6th and 7th ribs below the inferior angle of the scapula was opened up and a considerable piece of the 6th rib removed; the lung was found to be firmly adhered to the chest walls, but the sinus led deeply in towards the mediastinum. This sinus was opened up and dilated, and a large sized drainage tube passed deeply in, which caused a free and copious discharge of pus. Gradually the expectoration of purulent matter lessened and then ceased altogether; he lost his feverishness and gained flesh; the cough ceased, and he became able to lie upon either side. Eventually the lung regained to a great extent its use, the wound healed up, and he left the hospital on the 22nd December comparatively quite well.

This collection of pus could not have been a general empyema, because the lung was found at the time of operation to be adherent to the chest walls, but it was probably a localised empyema between the lobes of the right lung, and which as it increased in size pressed upon the resilient lung in all directions and made its way to the surface in the lines of least resistance; but when once free drainage was established the opening into the bronchial tubes closed, and as it lessened in size the lung once more re-asserted itself and became again a useful organ.

Ununited fracture of humerus.

Private H——, aged 23, 4th R. B., of healthy aspect, arrived at Netley on the 26th April 1888, when he gave the following history. On the 20th October 1887, when out game shooting, he sat down to rest, and had the muzzle of his gun resting against his left shoulder, when it accidentally went off and lodged its contents in his left upper arm. He made the best of his way

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home and was at once admitted into hospital. During the first fortnight several small pieces of bone came away and also a gun wad; the arm was confined in splints, but the anterior wound did not heal. In the February following he was invalided home, and arrived as above stated. On examination it was found that there was a sinus in upper and anterior aspect of the arm, leading in toward an ununited fracture of the humerus in its upper third. On June 1st, chloroform having been administered, an incision was made anteriorly through the sinus and over the site of the existing false joint, the ends of the bone were cleared, and first the extremity of the upper fragment was turned out with great difficulty, owing to its shortness, and its end was sawn off; the bone seemed hard and healthy; then the lower end was easily treated in the way, and about one inch was removed; the bone was dark in colour and very soft. The two ends were then drilled and a stout silver wire was introduced and twisted up; but this at once cut its way through the lower fragment, so fresh holes had to be drilled. The sides of the wound were then brought together, and it healed except in one place. On July 24th the wire, seeming to be the cause of irritation, was removed, but the humerus did not consolidate, and still a small sinus remained open. On the 4th September he left, at his own request. Some union had taken place, but not of an osseous character. Through the courtesy of Dr. Calvert, house-surgeon of St. Thomas' Hospital, I am enabled to further state that this patient, upon leaving Netley at once went up to St. Thomas', where he was admitted under Mr. Makin's care. who, on the 19th September, operated upon the arm and found the ends of the bone were united by a fibrous band about ¾ inch long, and as thick as an adult's little finger. The lower end of the upper fragment was found to be hard and in good condition, the upper end of the lower fragment was very soft, and half an inch of it was taken away; the bones were drilled and brought together by two stout silver wire sutures. The wound healed well, and on December 14th the letter says, that though there was very little callus thrown out, still bony union was taking place. I think I erred in the first operation in not removing a much greater piece of the lower fragment.

Ligature of common carotid.

Private D——, aged 25, 1 C. R., was invalided from India on account of a tumour in the pharynx. He arrived at Netley on the 28th November 1888, when he gave the following history: Had had good health up to July last, when he began to suffer from pain in the left ear; he became quite deaf in it; he then noticed a swelling inside his mouth which increased rapidly in size, the pain in the ear became more acute, and was of a lancinating character and radiated up the side of the head, and prevented sleep. He now went to hospital as he began to have a difficulty in swallowing, and also experienced some obstruction in breathing through the left nostril, the glands near the angle of the jaw now became enlarged, and his voice was reduced to a whisper. On the 3rd November he embarked for England.

On admission he was noticed to be pale and sallow in appearance, and was very emaciated. The left side of the face bulged, and he had a feeling of numbness over the skin of the left side of the face, as well as inside, along the floor of the mouth; there was also a complete loss of sensation about the angle of the mouth on this side, especially along the lower lip. The pupil of the left eye was contracted to the size of a pin's head. There was a great deal of glandular enlargement of the lymph glands of the left side of the neck. On examining through the mouth a large and somewhat lobed mass was seen projecting from the soft palate and blocking up the entrance to the pharynx, the uvula was pushed quite over to the right side, the tumour felt hard, and seemed connected with the ascending ramus of the lower jaw. On one part of the tumour a small ulcer was seen. The left nostril was quite blocked up, and he was unable to breathe through it; the voice was very husky, indistinct, and almost inaudible. The diagnosis was that the tumour was a sarcoma connected with the periosteum of the sphenoid and ascending ramus of lower jaw. On the 17th December a large slough came away, leaving a large circular ulcer. On the 23rd December, at 5 a.m., great hæmorrhage took place from this ulcer, and he lost a great quantity of blood. Weak applications of ice and tincture of iron were tried; but as soon as the necessary preparations could be made the left common carotid was tied by the ordinary method. No further hæmorrhage took place after the

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application of the ligature, but after some attempt at rallying he sank and died at 3 p.m. on the 24th December.

The tumour was a small-celled sarcoma, and was found at the post-mortem examination to be adherent to the inner side of the ascending ramus of the inferior maxilla; it implicated the soft palate, and, to a slight extent, the hard palate; it had also attachments to the sphenoid bone, and seriously implicated the structures at the back of the upper part of the pharynx.

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APPENDIX No. III.

REPORT OF THE TRANSACTIONS OF THE FRENCH CONGRESS OF SURGERY AT PARIS IN MARCH 1888.

By Brigade-Surgeon C. H. Y. GODWIN, M.S., Assistant Professor of Military Surgery, Netley.

Having received directions from the Director-General of the Medical Staff to proceed to Paris to attend the third session of the French Congress of Surgeons about to assemble from the 12th to the 17th March 1888, I accordingly made arrangements and left London on the 10th March for Paris, which I duly reached that same evening.

On the morning of the 12th I called upon the Secretary General to the Congress, M. le Dr. S. Pozzi, and received from him a most cordial reception and welcome, and also various particulars concerning the meeting.

Object. The French Congress of Surgery has for its object to establish a scientific intercourse between the Paris and the provincial practitioners, whether national or foreign, who interest themselves in the progress of surgery. The Congress holds a session in Paris each year, usually in the second fortnight of October, but in this year, 1888, it was for some reason held six months earlier than usual.

The officers for the present session (the third) of the Congress were:—

President.

M. VERNEUIL, Prof. á la Faculté de Médecine de Paris, Membre de l'Academie de Médecine.

Vice-President.

M. le Baron LARREY, Membre de l'Academie de Médecine.

Secretary General.

M. le Dr. S. POZZI, Prof. agrégé de la Faculté de Médecine de Paris, Chirurgien des hôpitaux.

Third session. The third session commenced its meetings on the 12th March, and continued them day by day until the 17th March, when the Congress was closed, and adjourned until October 1889.

The meetings were held in the theatre of the Administration de l'Assistance publique, 3, Avenue Victoria, Paris, where the business was commenced at 2 p.m. on the 12th March 1888 by an address from the President, M. Verneuil, to which a reference will be made later on. After which a paper was read by Prof. Ollier de Lyon, on the treatment of ankylosis of the wrist by resection, and the re-establishment of a mobile wrist-joint after that operation. And after this another paper by Prof. Demons de Bordeaux on the removal of the larynx by operation. Extracts from both of which I append to this report.

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The meetings were held daily at 9 a.m. until 12 noon, and again from 3 p.m. to 6 p.m., except on Thursday, the 15th March, when visits were arranged as follows :—

Visits.

11 a.m. Pasteur Institute to see the inoculations being carried out.
2 p.m. La Morgue.
3 p.m. The new schools of the Faculté de Médecine.
4 p.m. Pasteur Institute to hear a discourse on the work being carried on with reference to the prevention of hydrophobia.

Programme.

The following subjects occupied the attention of the members on the four days of the session :—

Mornings.

On Tuesday, 13th March, from 9–12, on the treatment to be adopted in cases of gunshot wounds of the abdomen.
On Wednesday, 14th March, from 9–12, the value of the operation for the radical cure of hernia.
On Friday, 16th March, from 9–12, empyema and its treatment.
On Saturdays, 17th March, from 9–12, on the return of tumours after removal, and the steps to be taken to prevent their recurrence.

Afternoons.

In the afternoons papers were read by members upon every variety of subjects. Very little discussion took place after any one paper, but members succeeded each other with communications on their particular subjects with a rapidity that was quite surprising, so much so that the time for each communication had to be curtailed from 15 minutes to 10, in order to give each member an opportunity.

Attendance.

The Congress was well attended, but, I believe, not quite up to expectation, owing to its advancement in point of time from the autumn to the spring. Several surgeons came from Belgium, Holland, Switzerland, one from Copenhagen, one from Bucharest, myself and others from England. The weather rendered the visit somewhat trying owing to the high winds, deep snow, and intense cold, which all combined to render locomotion difficult; but this cold reception was entirely limited to the climate, for nothing could exceed the courtesy, politeness, and warmth of the welcome accorded to me by the various distinguished members of the Congress with whom I was brought in contact, and everything that was possible was done by the Secretary General, M. Pozzi, to make the visit pleasant and agreeable. His great readiness to oblige all who sought his aid will always be gratefully remembered by those who benefited by his never-tiring energy and kindness.

Prof. Trelat's clinique.

I took advantage of an invitation to visit Professor Trelat's clinique at the Hôpital de la Charitie, and saw him perform a most skilful operation for cleft palate.

Prof. Lannelongue's clinique.

Also to visit Professor Lannelongue's clinique at the Hôpital du Trosseaux, where he devotes much time and labour in the treatment of the diseases of joints and bones of children.

Prof. Pozzi's clinique.

Also to visit the clinique of Professor Pozzi at the Hôpital de Lourcine-Pascal, and witnessed him perform an ovariotomy.

Value attached to antiseptic treatment.

The visits to the hospitals brought very forcibly to my notice the great value attached by these distinguished surgeons to the so-called antiseptic form of treating wounds. The greatest care was paid in the first instance to the operating theatre, which was kept strictly for its own purpose; its walls, furniture, &c. were of iron or enamel, so that the most perfect cleanliness could be observed; antiseptic solutions were at hand in great abundance, and everything betokened that a real value and importance was attached to every detail connected with this method of wound treatment. That this method has entirely altered the results of operations is the greatest and strongest argument in its favour, and while not observing anything in the hospital construction or ward management that would place our English hospitals at a disadvantage, I am bound to remark on the great care taken in the operating theatre, both with regard to the cleanliness of the room itself, and the means used to ensure nothing coming in contact with the wound but what could be considered as aseptic and pure.

First morning's discussion.

I append a summary of the chief discussions upon the various questions. That set down for the first day, viz., "The treatment to be adopted in cases of "gunshot wounds of the abdomen," is one exciting great interest amongst all classes of surgeons.

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The views held at present are somewhat diverse. There are those who conceive that all penetrating wounds are nearly certain to be complicated by wounds of the viscera, and as these are invariably fatal, an early operation is at once called for. Then, again, others say that it does not follow that the viscera have been wounded because there is a perforating wound of the walls of the abdomen, therefore it is not justifiable, or even prudent, to perform so serious an operation as a laparotomy upon a chance of finding a wounded intestine or other viscus, but that it is better to wait until some signs of a coming peritonitis show that there is an internal wound. The treatment of this class of injury is assuming such importance that I give a full account of the discussion.

Second morning. Third morning. I add also a summary of the debate, "On the value of the operation "for the radical cure of hernia," and, also, "The means whereby the return "of malignant growths can be prevented after operation." Most of the surgeons in the last recommend a free removal of all parts immediately surrounding the tumour, and M. Cazin, whose experience is very large, lays some stress on the necessity of removing all diseased lymphatics leading between the tumour and the next series of glands as well as he glands themselves; and M. Verneuil referred to some writings of M. Reclus, who seems to think that the great increase in the use of animal in the place of vegetable food has much to say to the greater number of cases of cancer that are now to be met with in the present day.

Several papers relating to gynecological subjects were read, but to which I need not further allude.

Fourth morning. Various communications were made on the subject of the fourth day, viz., "Suppuration of the pleura and its treatment."

Many surgeons advocated the operation of Letievant-Estlander, which consists in making section of a number of ribs, and thus allowing the chest wall to collapse upon the condensed and contracted lung. Many cases were quoted as cures, yet in others a fistula remained which nothing would heal; the patients in these cases were doubtless benefited though they could not be said to be cured. In one case quoted by M. Fort, of Paris, the patient in the middle of the operation was seized by a fit of epilepsy, as soon as he could be restored he was found to be paralysed completely in the upper extremities, and partially in the lower, a truly formidable complication to arise in the middle of a serious operation. The operation may be occasionally useful, but to the army surgeon it is not likely to prove to be one that is often required.

Pasteur Institute. The visit to the Pasteur Institute was of a most interesting character. Members of the Congress were invited to come in the morning and witness the inoculations as daily practised, and again in the afternoon at 4 p.m. to meet M. Pasteur and hear his account of the treatment. The morning visit made one realise what a vast number of people are affected, or are liable to be affected, by mad animals. The crowd of people waiting to be treated comprised all races and classes of people, men, women, and children, all pressing forward to get the daily dose injected under the skin. M. Pasteur lays some stress upon the celerity with which he can commence his treatment after the exposure to the infection (bite). Consequently the worst cases are those which come from Russia, where the people have probably been bitten by wolves, and the period that has intervened between the date of the bite and the arrival in Paris is so great as to render the chances of success small. To stand by and see the different nationalities as betokened by differences of dress and costume, and yet all with the same eager expression of countenance, coming forward to get the injection, is a sight never to be forgotten. In the afternoon the explanation of all that was going on, and the demonstration of the process of preparing the spinal cords of rabietic rabbits, was most deeply interesting.

La Morgue. Among the invitations, that to visit La Morgue, was well responded to. A description of it here is not needed, nor of the purposes served by the institution. The number of dead bodies brought to it every year, amounting to several hundreds, seems large. When a body is brought in it is washed and then placed on a slab and exposed to view through a medium of plate glass in a cool chamber, and by the side of it are placed the clothes that were found upon it.

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If after a certain time the body is not identified and claimed, it is removed and placed by itself in a closed cell, the temperature of which is kept so low that the cadaver can be kept quite fresh for at least three months in the summer.

L'École de Médecine.

The visit to "Les Nouvelles Installations de la Faculté" was well arranged. A series of new and splendid buildings are now in process of completion, and which comprise the most elaborate arrangements for anatomy, museums, and laboratories. M. Cornil very kindly received the visitors in his histological laboratory, and had a succession of beautiful specimens arranged under the microscope for their edification. He was most courteous in doing the honours of his section.

The outlay upon these buildings must have been considerable, covering so much ground as they do in such a densely populated part of Paris. The buildings are grand in themselves, and will, when finished, provide splendid opportunities for those who are fortunate enough to proceed thither for study. One could not help regretting that there was no central university to direct our schools of medicine in London, and to provide a teaching body and buildings equal to the clinical opportunities that London so uniquely offers.

A student from Holland, whose acquaintance I had the good fortune to make, remarked to me, Oh, Paris! why there is no need to study here, one has only to keep ones eyes and ears open, and one learns everything the world knows without effort. To a certain extent I think he was right, and that the schools of medicine of Paris offers facilities that a visitor can only see to admire and envy.

President's Address.

M. Verneuil, President of the Congress, opened the session with an address of welcome to both the members of the Congress, and also to the foreign visitors present. He then entered largely into the subject which he particularly favours, namely, the benefits of the conservative methods of treatment in the cure of surgical affections.

French surgery, M. Verneuil says, careful for the preservation of parts, is certainly in advance of that which is enraptured only in the presence of a heroic ablation, and which places the operating surgeon in the first rank among therapeutic agents (et éléveraient volontiers un temple au Dieu Bistori). If one compares the general tendencies of surgical therapeutics in France with those of other countries, he is able to state that they are in no country more conservative than in ours, and in no place are they more concerned to use—

1. All remedies, hygienic means, and surgical proceedings of gentleness, and operations of a bloodless character.
2. To base all treatment on the etiology, pathology, the nature, the form and degree of the disease to be overcome.
3. To weigh carefully the teaching of physiology and pathology, and to put aside the assumed barriers placed between medical and surgical pathology.
4. To employ in the case where operative interference is necessary the proceeding that is least dangerous and the easiest to perform.
5. To be electic, that is to say, to accept as useful all therapeutic means for the purpose of determining carefully the cases common or rare which require them, and above all of not using them exclusively, nor by guess, nor by rule of thumb.
6. To be opportunist, that is to say, to weigh carefully the advantages and the disadvantages of hasty or of leisurely action, of holding one's hand for a time or definitively, so as to be able to seize the exact moment, *occasio præceps*.
7. To fix precisely the indications and contra-indications for an operation, and in taking account of the age of the individual and of the constitutional ailment, latent or patent, by which he is affected.
8. Again, to carry out before and after the operation a treatment suitable for preparing for it, for securing and rendering certain its success.

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Now, we believe that the surgeon who accepts these principles, and applies them conscientiously and wisely, will cure many diseases, and if the trumpets of fame do not carry his name to a distance, as if he had removed a lung, or tied the basilar artery, he will be able to console himself in counting the number of those for whom he will have, without noise, preserved their health, or saved their lives.

The treatment of Ankylosis of the Wrist by resection and the re-establishment of a mobile articulation after that operation, by Professor Ollier, of Lyons.

Hitherto, and even since the introduction of antiseptic surgery, we had not dreamt of treating ankylosis of the wrist by resection, for the reason that ankylosis was precisely the most favourable result that was possible to follow a resection.

I will try to show here by the description of several observations, very striking in this respect, that the resection of the wrist practised in certain conditions is able to permit after it a joint, not only mobile by communicated movements, but also self-mobile, in one word, the part recovers its function in a degree more or less considerable. The old operation consisted in sacrificing the tendons of the motor muscles proper of the wrist, and only to keep if possible the motor muscles of the fingers. We must go a step further and save the tendons of the wrist proper. The possibility of that conservation is real, and its value is fully demonstrated in my patients, on whom I have operated a sufficiently long time.

But I have done more than examine the use of the hands operated upon. I have had an opportunity to make an autopsy of two of my old resection cases, and this is what I have found. Between the ends of the radius and the metacarpal bones there existed a osteo-fibrous band very dense and containing some particles of true bone. The movements were possible owing to the interposition of that tough and yielding mass.

At the same time that the hand had recovered its power of movement, it is important to note that the power of the member was preserved in a great degree. The patients were able to raise, and maintain raised, dumbells of 8, 12, and 16 kilos. Then the tendons of the fingers have preserved their use, and I am able to say that their movements represent half of their normal amount. The two cases of which I wish to speak can be given thus. The first was that of a young woman who had been already operated upon for ankylosis of both elbows, and who suffered again from an ankylosis of the wrist, which had pained her greatly. I determined to remove the carpal bones, and I also removed a centimetre of the bones of the forearm, the movements of the hand returned so completely that she was able to play the piano, and had a most useful hand.

In the second case there was a more serious deformity, the hand was flexed and ankylosed in a position most unfavourable for its use. The operation in this kind of case is more urgent than in any other. I decided to attempt a resection, which gave as good a result as in the first.

On removal of the Larynx, by Professor Demons, of Bordeaux.

The operation, which consists in removing the larynx for cancer, is a surgical proceeding of great boldness, and the statistics connected with it are so discouraging that surgeons have been disinclined to try it. Those who do not die from the operation are exposed to a rapid recurrence of the disease, and those who happily survive have a deformity that it is difficult to hide. It is no wonder then that a number of distinguished surgeons condemn it

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altogether. I wish to try and establish here that in certain conditions it is right to attempt the removal of the larynx. It is the question only to settle the cases in which it is justifiable.

I have performed the operation twice; the first time it was the case of a man 44 years of age, with a syphilitic history, in whom cancer of the larynx had been most positively established. The disease had commenced at the epiglottis, then the submaxillary and deep cervical glands had become affected, and tracheotomy had been necessary.

I partially removed the larynx by a transverse incision below the hyoid bone, assisted by another vertical one. The patient remained nine months without a return, then the cancer reappeared at the base of the tongue. This, then, was a very bad case from the extensiveness of the new growth.

The second case is altogether different. It happened to a man 57 years of years, also with a syphilitic history, who showed the commencement of cancer of the larynx in the right vocal cord. The cancer grew and affected the left side of the larynx, but remained absolutely limited to the interior of the organ. Tracheotomy was here also performed to prevent any chance of suffocation. Owing to the limitation of the disease to the interior of the larynx, and as the glands were free, I considered myself justified in attempting a radical cure. After making the incision in the soft parts, I did a thing which I consider most helpful, I made a preliminary medium incision of the thyroid cartilage, this plan enabled me to see exactly the lesion and its extension. I saw immediately that the disease extended to both sides, and I decided to remove the whole organ. The patient recovered after some weeks, and for six months after the operation his health remained good. I add that the microscopic examination revealed that the new growth belonged to the epithelial class

In short, these results are better than the miserable life which follows tracheotomy for cancer of the larynx, and which is attended with pain and inconvenience to the end of the patient's existence. And, again, when epithelioma is enclosed in the interior of the larynx without extension outside it is in the most favourable condition possible for operation, since the disease is contained in a sort of box. It is in such conditions that removal of the larynx, an operation always serious, is absolutely indicated as the only road to recovery.

M. Dupont, of Lausanne.—To prevent the blood from entering the air passages in this operation it is usual to tie in Trendelenburg's tube; but I find fault with it, because it is liable to slip out when the patient makes any effort of coughing. In an operation for removal of the larynx, which I performed, I did another thing, I made a section of the trachea; then I dissected the inferior end from the æsophagus and fixed it, turning it down over the inferior angle of the wound. In this manner the opening of the air passages is removed from the field of operation.

M. Mollière, of Lyons.—In an operation of partial removal of the larynx, I used Trendelenburg's tube, which has given me the best results; not a drop of blood entered the trachea. This tube can be left in for 10 days, until the wound has cicatrized, and it is better borne than the ordinary tube, because it does not move in the trachea, and so irritate the mucous membrane. The patient on whom I operated was cured at the end of 10 days, and primary union obtained. He retained one vocal cord, by means of which he could speak, although his voice was slightly altered. Here, then, is a fact in favour of removal of the larynx, and after the experience which I have had I shall not hesitate to practise the operation when the conditions are favourable.

On the Treatment of Gunshot Wounds of the Abdomen.

M. Chanvel, Professeur Val-de-Grâce de Paris.—For wounds of the cranium, the chest, and the abdomen, caused by gunshot injuries, there have been always the two kinds of treatment, expectant and operative, both of which have had their warm partisans. But the conditions have now changed and M. Chanvel.

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the introduction of antisepsis into military surgery has modified the practice hitherto followed.

In bullet wounds of the cranium it may be that septic matter has been carried deeply into the brain substance; but if, on the other hand, this has not been the case, we do not find in the wound any poisonous matter that will contaminate the wound.

In wounds of the chest it is a little different, the bronchial tubes communicate with the wound, and are thus able to infect it by the air and mucus they contain, yet in the generality of cases the causes of infection come from without.

In wounds of the abdomen, on the other hand, we must fear infection from within by the laceration and extravasation of the contents of the bladder, of the gall bladder, and especially of the intestinal tube.

Again, when it is a question of injury of the head or of the chest, the action of the surgeon is usually reduced to a minimum, considering that death follows very quickly the destruction or serious lesion of the vital organs.

When it is a question of wound of the abdomen death usually follows owing to septic inflammation if the patient only lives long enough for this to develop.

For bullet wounds of the abdomen, interference has found its advocates for the last 100 years in Thomassin, Dufonart, Bandens, Legonest, Otis, &c.; but their teaching has been but little followed, and in America, in adopting this method, it has been considered new. In France the opinions are very divided, and I am one of the few partisans of immediate laparotomy when there is a wound of the viscera, shown by the symptoms, or by the examination. It is this doctrine that I now support.

The general statistics show the enormous gravity of these injuries. Experience proves the rarity of a spontaneous cure. The experience of M. Reclus with dogs, purged and starved, prove nothing for the opposite condition, and one must believe that rifle bullet wounds, owing to their severity, predispose to peritoneal extravasation.

But at the outset the symptoms are most obscure, the escape of fœcal matter externally and the protrusion of viscera are rare, we must explore if we do not wish to await for peritonitis. Hæmorrhage and septic peritonitis are the chief causes of death. What is more natural than to try and prevent them by the deligation of the arteries and by the removal of septic matter. It is said that laparotomy is dangerous, imperfect, useless. The danger will be lessened by familiarity with the operation, and the surgeon accustomed to operating will be less liable to make mistakes.

Out of 41 cases of laparotomy for bullet wounds of the abdomen, reported since 1880, we find 12 recoveries and 29 deaths, nearly one third a success.

If we strike out the cases where the operation has been undertaken dilatorily or too late, the proportion of recoveries will be much greater. The washing of the peritoneum, recommended by Nimier, cannot take the place of laparotomy. The latter ought to be done, as a general rule, in the middle line, and as quickly as possible. The removal of a foreign body, the ligature of the vessels, the suture of the intestine before or after resection, the cleansing of the cavity, the removal of certain organs, according to the requirements of the case, will be carried out best by an incision made in the linea alba. Again, the medical treatment, absolute rest, opium, and strict diet, will all tend to help the surgeon. We ought, therefore, to give up systematic expectant treatment and operate as soon as possible.

M. Delorme.

M. E. Delorme, Professeur Val de Grâce de Paris.—Surgical interference in cases of gunshot wound of the intestine is an operation the most reasonable, and the usefulness of which has been proved in a certain number of cases. Has the time come when it ought to be classed among the operations of the first importance in war? I think not.

When a citizen of a large town has his abdomen penetrated by a bullet, either in an attempt at suicide or homicide, he finds in a hospital the conditions most favourable for the success of the immediate treatment which may be thought necessary in his case. But how different is the situation which presents itself to the soldier wounded in battle. Suffering from intense shock, in a state almost moribund, he will at first have to wait long hours before he can be attended upon. Then not till after he has been subjected to a rough

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and ready carriage will he receive the help of the ambulance surgeon. This ambulance has nothing of the complicated and useful arrangements of the operating theatre. It is fitted hardly sufficiently for the most ordinary operations of field surgery.

There could not be the quietude necessary to carry out an operation most delicate and often very prolonged. The dreadful impressions, even the very dangers of the combat, are felt by all alike; again, time presses. Absorbed as he is by hundreds of injuries all claiming his aid, the urgency of which is also great, and the utility unquestionable as compared with those wounded in the belly, can he be blamed who in condition so wretched and unfavourable does not wait to hunt after a wounded intestine? In the field hospitals, perhaps, he will be able to do otherwise.

When these hospitals approach the field of battle the overcrowding is so rapid that no one can undertake operations except of the most urgent kind, such as would have to be done in the ambulances themselves. When these hospitals are in the best condition for work, 24 or 48 hours after the fight, it is too late to operate.

If we believe Morton, laparotomies, hitherto followed by success, have been done within seven hours after the injury, and these operations ended fatally when they had not been done for 23 hours after the accident.

The conditions of field surgery seem to me to limit here the indications for immediate interference as applied to wounds of the intestines. It cannot be, in my opinion, for even wounds of the least importance have to be rapidly moved under the very worst conditions; so how could one have recourse to that operation?

In conclusion, the wounded in the field, who have bullet wounds of the intestine, do not find themselves, except very exceptionally, under conditions which allow a laparotomy. The operation is unfitted for the ambulance, and when the wounded men reach the field hospital it is too late. In conditions favourable as to time and place, I think, as far as I know, that it is advantageous to interfere considering the terrible mortality of intestinal wounds caused by bullets left to themselves or treated only by medical means. The principal contra-indication in the latter case is to be drawn from the local condition; as for example, it is perhaps a case of a wound caused by the explosion of a shell or by a ball travelling with a high velocity, the number of the wounds would affect the prognosis without forbidding the operation.

M. Poncet. M. Poncet (Val-de-Grâce).—The old round bullets caused extravasations of blood in the abdomen by bruising the tissues. Later, and up to 1855, shells caused contusions, besides ecchymosis of the walls, but also lesions of the intestine.

M. Poncet has seen at the siege of Strasburg cases in which the contusion of the intestine, caused by fragments of shell, gave rise to perforation at the end of seven or eight days at the seat of the slough.

The modern shell, with a charge of melanite, gives on an average 500 or 600 pieces of all sizes, riddling and tattooing everybody near them. The small fragments bristle with irregularities. The force of the pieces is such that they are found 300 metres in rear and 900 metres in front of the place of explosion. It is certain that at that spot everyone would be killed; men and horses are riddled and annihilated within a radius of 50 metres.

The new bullets, weighing 25 grammes, will perforate easily the abdomen; but at the end of their flight they will not produce as severe a contusion as the old Minie ball, which was heavier.

In conclusion, M. Poncet thinks that with the new projectile—first, in wounds of the abdomen with emphysema, laparotomy ought to be performed immediately; secondly, when there are not any signs of perforation it will be better to wait, to unload the intestinal canal, and to give opium in full doses.

M. Reclus. M. Reclus de Paris.—The existence of a penetrating wound of the abdomen from a pistol bullet is, for English and American surgeons, the most positive indication for immediate laparotomy. For them intestinal perforation is the corollary of all penetrating wounds, and death the consequence of an intestinal wound left to itself.

The first part of that proposition can be accepted for in one case only out of 37, in my experience, was a ball able to traverse the abdomen without

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wounding the intestines, and I cannot confirm the opinion expressed by Prof. Trélat.

I deny absolutely that all perforations of the intestine are fatal. How can I prove this? Several causes can be cited to explain :—

1st. The confusion caused by comparing revolver-bullet wounds with those caused by military rifles, which are much more severe.

2nd. The results of experiments upon dogs. All Parkes' animals in fact died. But the dog is not comparable with man in the respect, chiefly on account of the shortness of its intestine, of its muscularity, and from the fact of the relatively larger size of a revolver bullet with reference to the dog than to man, all conditions which favour extravasation of its contents. To render the circumstances equal I have cleared out the intestine of my dogs previously by a purge, and this has allowed me to save a number.

3rd. Again, by virtue of the axiom established, that has denied the possibility of intestinal perforation in all cases of recovery.

Recovery is frequent enough in these conditions. M. Saint Laurent, one of my pupils, has been able to collect 25 cases. My friend and old house surgeon, M. Naguèà, has got together 50, and I can easily get 100 by adding in wounds from stabbing weapons. In all those cases perforation had not been diagnosed on account of no pathognomonic symptoms, as issue of fœcal matter from the wounds, immediate hæmorrhage, melæna, or a missile voided per anum. I give also many observations in a paper now in course of preparation of M. Quénu, Ferraton, and Naguez, not yet published.

The physiology and pathology explain, moreover, the possibility of these recoveries.

The three chief causes of death after these injuries are hæmorrhage from injury to large vessels, shock, and peritonitis due to fœcal extravasation.

For the first two there is little that can be done, but the third, and much the most frequent, can be prevented without operation.

Nature prevents it by several ways.

Sometimes by the protusion of a mucous plug which fills up the opening; this was stated by Travers, and denied since, but which seem proved by several of my experiments.

Sometimes by an accidental incident, as by the contraction of the muscular coat which closes the opening like the mouth of a purse.

Sometimes again, and this is much the most common, by the rapid adhesion with another convolution, or it may be to the parietal peritoneum.

In short, the truth of this conclusion has been proved in man. In nine of the cases quoted by Barnard, where laparotomy had been done some hours after the accident, there was no trace of fœcal extravasation.

From these facts, and from my experience, I have adopted the following rules :—

1. To employ firm pressure on the belly as after laparotomy to prevent fœcal or bloody extravasation.
2. Administration of opium and rigid dietary, only allowing a little iced water every quarter of an hour to assuage thirst.
3. It is only if these precautions do not prevent the development of peritonitis that one is authorised to have recourse to laparotomy.

Laparotomy is, in these conditions, particularly serious. It necessitates the handling of the intestines and the prolonged manipulation which affect the prognosis. On the other hand, suturing the intestine diminishes the lumen of the intestine, which does not occur in spontaneous recoveries.

M. Trélat on abdominal wound.

M. Trélat de Paris.—I have listened with great interest to the communications of our military colleagues, and to that of M. Reclus.

The first have a great importance, they give us signs of the surgery of the future, a future, perhaps, at hand, but I do not dwell on this subject which is altogether special. I reply to Mr. Reclus.

Personally, I have found myself on two occasions brought face to face with this question of interference under the conditions which we are now considering, once for a patient in my practice, and, secondly, for a child which I saw with M. Pozzi.

I do not enter into the detail of these cases already published and sufficiently known. I will only say that the first injury was one of apparent escape of

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injury at the commencement, so that he walked to the hospital, violent reaction followed, with an accession of severe symptoms, which only permitted interference when it was too late. The autopsy showed that an operation much earlier might have been effectual.

In the second, the projectile had taken a transverse direction, the seriousness of which was pointed out by M. Delorme as probably producing a multiplicity of wounds. Non-interference would not, it is true, have modified the final result, seeing that it so quickly died, but the examination at the autopsy would have led us to blame the surgeons, because the accident had caused a number of wounds all gaping and accessible, which we did our best to close.

That which makes the progress difficult in this question is the rarity of cases of this kind, and the rarity still greater of an opportunity of immediate interference, or of a demonstrative autopsy. I speak only of cases in civil life, and do not refer to the wounded in war.

Also I understand the difficulty of surgeons who have not a personal experience of this subject, and their hesitation to enter upon the dilemma of a useless operation with a rapid death, or of a non-interference not less fatal.

And the cause of embarrassment comes from the observation of spontaneous recoveries as related by M. Reclus. It is a debate we cannot settle, for I decline to see in the symptoms which he mentioned a certain sign of a wounded small intestine. We must then distinguish with care the signs of perforation of the small intestine, hopelessly fatal or nearly so, from the signs of perforation of the stomach and of the fixed portions of the large intestine, of which we possess examples of undoubted recovery.

Among the ways of spontaneous cure related by M. Reclus, the formation of adhesions is possible, but it is chiefly in the case of wounds of the stomach and large intestine that it has been observed. How much for the mucous plug? M. Reclus has proved it true in the case of the dog, whose intestine has a different arrangement from that of man; and this is admitted by M. Reclus. I cannot accept the analogy for man. Parkes and Gross deny the possibility; and for myself I have always seen intestinal wounds to have everted edges altogether like the drawings in Mac Cormac's book. These openings are lessened by the protrusion of mucous membrane, but not sufficiently so as to prevent extravasation.

There are then two doctrines that I reject absolutely; one is that of non-interference which is condemned by the six or seven examples of recovery undoubtedly due to the operation, and that of expectant treatment until peritonitis has supervened. I again prefer systematic expectant treatment to the pretence of a so-called surgical operation performed on a patient hopelessly lost. The treatment of M. Reclus is half-way in this, and perhaps is right. I think, however, that it is not bold enough.

Having no great zeal for laparotomy, which is scarcely possible in the field and most serious under the best conditions, and without agreeing to do it on every occasion, I believe it necessary as soon as any symptom leads one to think there is fœcal extravasation.

These symptoms can be recognised at once by the escape of fœcal matter, by sudden and considerable tympanitis, by collapse increasing and pointing to hæmorrhage; a certain number of which hæmorrhages can be checked by operative interference.

If there are not any of these symptoms present as in my first case, we must wait for the occurrence of extravasation, and be ready to operate on the slightest suspicion of peritonitis. It is only in these cases that there is any good in applying the medical treatment mentioned by M. Reclus, but we must not trust to it exclusively.

Failure, in spite of all, will attend the greater number, and be, in fact, the rule; but that ought not to discourage surgeons; we must operate in all cases which seem to justify it, so as not to miss the cases, if few in number they be, which are amenable to surgical skill.

M. Labbé.—M. Trelat complains of the dearth of cases. I had occasion in February 1887 to see one that had the important symptoms. M. Labbé.

It was the case of a man 29 years of age, well born, but given to drink and to morphia, who shot himself with a revolver in the abdomen; the ball passed from above downwards. At 6 p.m. his servants found him nearly dead. I saw him two hours later; he was almost pulseless, cold, having had several

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faints; he appeared quite moribund. Several injections of ether had but little effect. It was, however, necessary to convey him to Paris; the journey of four kilometres was made on a stretcher. He arrived at midnight, with a temperature of 36° cent. in a state that did not permit an operation. He lived through the night in great agony; he had greenish vomiting, and he recovered slightly. In the morning he appeared better, but tympanitis showed a commencing peritonitis. I operated 14 hours after the accident. Immediately the incision through the walls was made there came a gush of blood, and on examining the small intestines I found four double perforations close together in the middle part of the ilium, and higher up a fifth; besides these five wounds of the intestine, the mesentery was perforated in one place, and this was the source of the hæmorrhage. I closed the wounds by Lembert's suture, and washed out the peritoneum, which was full of fœcal matter, with water that had been boiled. I then closed the abdomen without difficulty.

After this operation, which had lasted 1 hour and 10 minutes, the patient recovered himself slightly, but died during the night, 20 hours after the operation.

The hæmorrhage and the number of the wounds rendered the case most desperate. The case serves to show the necessity of a quick interference, contrary to the teaching of M. Reclus. Fourteen hours had sufficed for the peritoneum to become injected, and to have an exudation on its surface.

I think that the probability of an intestinal perforation is sufficient to justify a laparotomy, the gravity of which is less than has been represented. We must not attach an exaggerated importance to the melœna and hæmatemesis which were absent in my case, the very severe pain localized, the nausea, the commencement of tympanitis sufficed to compel an operative interference.

Valeur de la cure radicale des hernies au point de vue de la guérison définitive.

M. Socin.

M. Socin de Bâle opened the discussion, and said that in November and December last this question had been brought before the members of the Surgical Society of Paris, and they, before expressing any opinion, had wished to have a general inquiry into the opinions of a great number of surgeons. My opinion is:—

1. That the cure is not a sham.
2. That the operation ought to be the invariable accompaniment of an operation undertaken for the relief of a strangulated hernia, except, of course, in cases where the intestine either cannot be, or ought not to be, returned. I consider that after the intestine has been returned, the peritoneal opening should be firmly closed by sutures after the sac has been removed, and that this procedure does not add to the dangers of the operation.
3. That the radical cure in reducible hernia ought to be undertaken in young people under 20 years of age, in all cases where (*a*) the ordinary treatment by trusses does not maintain a complete or permanent reduction of the hernia, (*b*) and in adults when the truss does not maintain the reduction completely and without pain.
4. That the chances of success are greater in proportion to the youth of the patient, the smallness of the rupture, and the recency of the occurrence.
5. That the existence of a double hernia, and especially if hereditary, lessens the chance of success.
6. That bodily labour does not bring about a relapse.
7. That the use of a truss after the operation is useless and often unadvisible.
8. That the operation is without danger in the simple cases; danger exists only in the case of old people, and when the rupture is very large and the integument over it has become ulcerated.
9. The operation consists in the total removal of the sac below the neck. Sutures of the pillars of the ring are only exceptionally required.
10. In congenital hernia the dissection may sometimes be difficult, but the edges unite in most cases.
11. In the case of ectopia of the testicle with atrophy the testicle ought to be removed with the sac.

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M. Léonte de Bucharest described a new method of operating which had given him success. M. Léonte.

M. Thiriar de Bruxelles spoke strongly in favour of the operation. He only commenced to practice it after a visit to M. Socin's clinique, and he was quite satisfied with it. M. Thiriar.

M. Mollière de Lyon remarked that two difficulties had been put forward; one was the gravity of the operation, and the other was the difficulties in performing it. He thought that if there was no lesion of the intestine there was no danger in the operation; and also that the difficulties had been exaggerated. He said, to isolate the hernial tumour was not difficult, or to open it after having exposed it. He then returns the intestine, and ligatures the sac with an elastic ligature. M. Mollière.

M. Routier de Paris spoke in praise of the operation, and recommended the total removal of the sac by means of a ligature at its neck. Suture of the pillars of the ring appears to him useless. He recommends afterwards the use of a light truss. He thinks the operation harmless and to be advised for all strangulated hernia, in which the gut can be reduced; and for all hernia which cannot be constantly, completely, and easily kept up. M. Routier.

M. J. Bœckel de Strasbourg said he adopted the method of M. Lucas-Championnière; but he spoke less favourably about the operation than did some of the others. M. Bœckel.

M. Segond de Paris said the question to be decided was, Are the results to be regarded as radical cures or not? In his experience the patients operated upon had found great relief from the operation. All who had continued to wear a truss had been permanently benefited, but those who had given up their truss had lost all that they had gained by the operation. M. Segond.

M. Lucas-Championniere de Paris.—I distinguish clearly between operations done for the relief of strangulation, and for the cure of hernia not strangulated. The conditions are altogether different. I now refer to operations undertaken for the radical cure of reducible hernia. The operation is devoid of danger. The large painful herniæ require operation, but the success is in the cases of small recent herniæ which remain cured and require the aid of no truss. In infants the success of the operation has been marvellous, and so it is in adults if adopted in an early stage, and before the rings have become patulous. M. Lucas-Championniere.

De la récidive des nèoplasmes opérés, recherches des causes de la prophylaxie.

M. Cazin de Berck-sur-Mer opened the discussion and said. I do not wish to enter upon the general though interesting question of malignant growths, but I wish to give the results of my operations extending from September 1862 to 1886. In these 24 years I have had 564 operations for the removal of malignant growths. M. Cazin.

The diagnosis of the tumour has always been made before the operation, and confirmed by the examination of the tumours after removal.

Malignant tumours have been classified in order, as myoma, chrondroma, sarcoma, epithelioma, and carcinoma.

The return of the tumour has shown itself at periods varying from three months up to seven years after operation. The cures have not been numerous, but having regard to the necessarily fatal prognosis held by some surgeons with regard to cancer, I ought to feel pleased. I think my results are generally good, and that they are due to the fact that I always make a free removal of all parts immediately around the tumour. When no glands can even be felt enlarged, I always hunt widely for them in the axilla, under the clavicle, and often find some one or more. I pay great attention to the removal of the lymphatics themselves leading from the tumour to the glands. I do not attempt union by first intention, the important part is to have a successful operation, not merely a rapid cicatrization.

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M. Verneuil. M. Verneuil de Paris.—Are there any means whereby the return of a malignant tumour may be prevented? I think and believe that we ought to try and obtain this result by two kinds of treatment. At first by operation, such as was described by M. Cazin, and which we all in Paris recognize, viz., a large and free ablation, an emptying out of the axilla, &c., and then by internal remedies. Cancers lie for a while dormant. The tumour has been removed, some particle may have been left behind, but this does not commence at once to grow. This interval during the germination of the germ may be longer or shorter. I have operated in one case, and after 34 years the cancer re-appeared in the scar. Could the germ have been hidden all this time and then given rise to fresh development? Another time we remove an epithelioma from the lip, or from the cervix uteri, and after some years there is a return, where? in the glands, the cancer forms no part of the anatomical structure of the glands, how came about that new development there? It is as if the germs have been carried to the glands, there they have remained, and after a lengthened time have shown their presence.

What is the conclusion from all this? This; that we must carry on in the interval an internal treatment. We do not succeed when the cancer is in full growth; but, perhaps, when it is latent the morbid elements will be more vulnerable, more susceptible to the influence of internal remedies. These have been, perhaps, tried before the operation; then the operation is done, and we must try again with perhaps happier results. I believe that we ought to prescribe for the rheumatic diathesis as conducive to cancer, a prolonged alkaline treatment, as Vicky water, magnesia, and arsenic. I think we ought to watch carefully the food. M. Reclus, in a large and careful work, has shown that pure vegetarians are little liable to cancer. If this is so, there is a key to our treatment. We have to avoid iodide of potassium so much given without the slightest benefit in any case of cancer. It is only in cases complicated by syphilis that it is useful. In cases of cancer, it is a remedy absolutely injurious. This is my first point, and my second follows it. I was in 1844 house surgeon to Lisfranc. Lisfranc was a ready and bold surgeon. He operated upon few cases of cancer of the rectum or anus. Now, however, in the same hospital, and with the same class of patients, and without any special pains to get cases, I have not less than 15 cases of cancer of the rectum every year. I say the same thing of cancer of the breast, of the lips and tongue. Lisfranc scarcely met with any of those cases. I operate upon many.

My opinion is that we have now three or four times as many cases of cancer as there were 40 years ago. In England the same remark has been made, and in this, my second proposition approaches my first, that the cause of all this is due to our food. We have almost altogether left off living upon vegetable food, and we are becoming more and more carnivorous, rheumatic, and cancerous.

M Labbé. M. Labbé de Paris said that large and early operations were desirable, but yet that the return of the tumour was extremely probable. Yet he did not wish to substitue for the knife the various caustics so much used by charlatans, yet he could not but be aware how much good in certain cases the caustic of brother Côme had done. He said he readily agreed with M. Verneuil as to the value of internal treatment of the operations for cancer, especially by means of arsenic and alkalies, and he much recommended the use of tincture of Condurango, which he thought had given him very excellent results.

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APPENDIX No. IV.

A CASE OF COMPOUND COMMINUTED DEPRESSED FRACTURE OF SKULL WITH WOUND OF SUPERIOR LONGITUDINAL SINUS; TREPHINING; RECOVERY.

By Surgeon ALLAN PERRY, Medical Staff.

J. S., age 35 years, leading seaman, H.M.S. "Iron Duke," when at sea on 29th February 1888, was hit on the back of the head by a block weighing 7 lbs. falling 140 feet.

He was rendered insensible immediately.

He was landed at Gibraltar for treatment in the Station Hospital on March 3rd, and in the abstract of the case which accompanied him it says, "There "was profuse bleeding from wound (in head), this was triangular in shape, "the outer table was found to be depressed about 1-16th of an inch on the "right side; patient was in a comatose condition. Pupils at first contracted, "then dilated, and finally becoming contracted and remaining so; pulse "weak, 50 per minute."

On admission there was found a triangular wound in scalp over the posterior borders of the parietal bones. This led down to a depressed fracture of the skull. The shape of the depression was circular and star-shaped with a diameter of about 2 inches; the lower border was firmly fixed under the upper part of the sound portion of the occipital bone. The fracture consisted of portions of both the parietal and of the occipital bones.

The fragments were quite immovable.

The patient complained of great pain in the head. He did not answer questions readily. The pupils were equal, contracted, and fixed. The pulse was of fair volume but hesitating, 48 in the minute. There had been no vomiting. There was no paralysis of limbs or sphincters.

On a consultation being held by Surgeon General Mackinnon, C.B., Principal Medical Officer, and the Hospital Staff, it was decided to trephine and, if possible, to elevate the depressed portion.

At noon on the day of admission the patient was put under the influence of chloroform. The wound in scalp was enlarged downwards in the middle line and laterally, this fully exposed the whole of the fractured and depressed portion. The trephine was applied to the left of, and on a line with, the centre of the depression on the sound part of the left parietal bone. The disc of bone to be removed included a small piece of the fracture. On removing the disc the skull was found to be unusually thin. An elevator failed to raise the depression. A small angle of bone which overlapped was removed with a Hey's saw, and some chipping away of bone with Hofman's forceps was carried out, but to no purpose. A portion of the fracture was then divided with strong bone forceps, and the lion forceps applied to each piece of the depression separately. This effectually lifted the fragments until they were quite loose, the pericranium was stripped off, and they were removed, when it was found that a splinter of bone from the inner table had pierced the superior longitudinal sinus, from which there was the most alarming hæmorrhage. The rent in the sinus admitted the top of one's finger. A tenaculum and figure of 8 ligature failed to control the bleeding, which was eventually stopped by plugging pads of lint soaked in mercuric chloride solution (1-2000) over the sinus, with two soft sponges on the top, to exert elastic pressure. The whole of the scalp wound was dusted over with iodoform, and pads of lint wrung out with the mercuric solution were put over all, with a fairly tight bandage. Immediately after the removal of the depressed portion the patient's pulse

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quickened from 32 to 70 per minute. He had subcutaneous injections of ether during the operation, and as soon as he had sufficiently recovered from the effects of the chloroform, 1 oz. of brandy was administered.

The inner table was found to be fractured to a greater extent than the outer.

The patient was put to bed and an icebag applied to the head. Evening temperature, 99·8; pulse, 72; respirations, 20.

Towards night his breathing became irregular, and it was thought this might be due to the pressure of the sponges to the brain, so the bandage was removed, with the top sponge and a lighter bandage substituted; this had the effect of considerably improving his breathing. There was no recurrence of the bleeding.

March 4th.—Patient had passed a good night with a morphine injection of ⅓rd grain. The bandage was removed with the second sponge, the flaps of scalp were adjusted; iodoform and fresh mercuric pads applied. He complained of pain all over the cranium. His bladder had to be relieved by catheter (there was no urethral stricture). He appears to have lost the power of accommodation; he cannot see objects which are near him. Pupils contracted; they respond to the stimulus of light feebly.

March 5th.—The plug of lint was cautiously removed from over the sinus, but as there was slight bleeding a similar one was applied. He passed urine voluntarily to-day; he protrudes his tongue readily; the senses of smell and taste are lost; he appears to have a partial detachment of both retina, as he sees the upper part of a person but not the lower.

March 7th.—The pad of lint was permanently removed from the wound in the superior longitudinal sinus; there was no bleeding, the wound was aseptic and bathed in healthy pus; dressed as before.

March 8th.—Some ecchymosis of integument surrounding the inner aspects of both orbits was noticed.

From March 13th the patient's temperature was normal night and morning, the senses of taste and smell are returning, the ecchymosis round the eyes is deeper in colour. To-day the external rectus of the right eye was noticed to be decidedly weaker than its fellow, and the muscles of the left side of face showed less freely than those of the right side. The wound in scalp healing rapidly.

March 18th.—The wound in scalp had so granulated that no dura mater could be seen; there has never been any tendency to hernia cerebri.

March 21st.—Patient complained of double vision, from the paralytic affection of the right external rectus.

March 26th—Dressings changed to unguentum acid. boracic.; a small drainage tube was inserted into the lower opening of the wound.

March 28th.—By ophthalmoscopic examination a small hæmorrhage of recent date was noticed in the right disc.

March 31st.—Allowed out of doors for the first time.

April 26th.—During the last month the patient has made uninterrupted progress towards recovery; he gets about perfectly well. The only thing of which he complains is double vision, but he says the objects are getting nearer together. There is a small sinus in scalp which leads to bare bone, and from which there is a slight discharge of pus. The hole in skull has been filled up with a firm fibrous material, so that on passing one's finger over the place it is hard to say where the bone ends and the fibrous structure begins.

In addition to his diplopia the field of vision is impaired in an upward direction, and to the right.

Ophthalmoscopic Examination.—Right eye: there is an unusually bright white reflex from fundus (? atrophy), the disc appears devoid of vessels, the margins of disc are indistinct; the small hæmorrhage noticed on March 28th has nearly cleared up. Left eye: fundus of a more healthy colour than the right, but it is pale.

No detachment of retina observable.

May 17th.—Patient discharged from Hospital for passage to England.

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APPENDIX No. V.

REPORT OF A CASE OF FRACTURE OF THE PETROUS PORTION OF THE TEMPORAL BONE.

By Surgeon-Major JAMES FRASER, M.D., Medical Staff.

At Secunderabad on the 4th June 1887 Private J.B., 7th Hussars, aged 24, service 2 years, in India 5 months, was thrown from his horse at riding school, and fell on the left side of his head. He lay insensible for about five minutes, bleeding freely from the left ear; but in a short time was able to walk with assistance to the hospital, distant half a mile, vomiting twice on the way.

On reaching the hospital he had recovered from the shock to a great extent, but was still stupid and confused; rational, though slow and hesitating, in his replies to questions, and complaining very much of his head. The hæmorrhage had nearly ceased, but blood was still oozing from the ear. The hearing of the injured ear was much impaired. Pulse 44, respirations normal, pupils dilated but sensible to light. Evening: pulse 52, temperature 100·6. Was more comfortable, but felt queer about the head.

5th June.—Had not slept. Had much pain and stiffness in the muscles of the neck, and uncomfortable feeling in right eye-ball, and vision of that eye blurred and very weak; pupils dilated but sensible to light. There was a little discharge from the ear, but the meatus was completely blocked by what appeared to be a mass of brain substance. Tongue clean; no thirst; temperature normal; pulse 52.

6th June.—Slept towards morning. Felt better; no change in local or general symptoms. Pulse, morning 42, evening 54.

8th June.—The left side of the head felt numb as if asleep, but no headache; no loss of sensation or motion elsewhere; no discharge from the ear, which was completely blocked up with what seemed to be cerebral matter. Temperature normal; pulse 42.

9th June.—Deafness, left ear, sight, right eye, and peculiar sensation in left side of head unchanged. Discharge of clear fluid from left ear since the previous day. Temperature normal; pulse 46.

12th June.—Restless, and sleep much disturbed by dreams. Numb feeling in the left side of head, and impaired vision, right eye, continued. Suffered from very acute but transient shooting pains in interior of skull; discharge from ear unchanged. Some of the contents of the ear were placed under the microscope and nerve ganglion corpuscles were clearly seen. There is no reasonable doubt that it was brain substance.

13th June.—Ear nearly clear; brain substance came away on cotton-wool. He felt better. Spoke slowly with much apparent deliberation. Pulse about 40; temperature normal.

14th June.—Slept well. Brain clearer; otherwise as before. Could see test dots, right eye 3 feet 1 inch; left eye normal.

15th June.—Discharge from ear ceased. Could hear the tick of a watch laid on injured ear. Numb feeling less; shooting pains less frequent; speech improved.

19th June.—Could see test dots at 3 feet 10 inches; pupils still dilated. Membrana tympani not clearly made out, but a quantity of brain substance, apparently fresh and soft, seen in lower and back part of meatus. Giddiness on assuming the erect position was a prominent symptom.

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28th June.—Improved; giddiness less, speech more natural, hearing better. Counted the test dots at 7 feet with right eye.

7th July.—Counted test dots at 8 feet 3 inches. Shooting pains fewer and less severe. Giddiness less severe.

17th July.—Could count test dots at 9 feet 6 inches, but could not see them clearly for any length of time. Hearing improved; meatus clear except at the lower and back part, where there was still a scab over the suspected seat of fracture. Could walk on level ground, but any irregularity, or descending the steps of the verandah, produced a "jar" in the head. Sleeps fairly; general health improved. Presented rather a dull, dazed appearance, but was not mentally incompetent, though somewhat slow and hesitating.

16th September.—He remained much in the same state, and was recommended by a medical board for change to England (where he was eventually discharged the service as an invalid in December 1887).

He was treated throughout in a separate, quiet, and well-darkened ward; a piece of carbolised cotton-wool placed lightly in the meatus, and outside cotton-wool sprinkled with iodoform; ice to head; calomel, purgatives, &c.; careful diet.

That such a severe injury should be attended by so few symptoms, and so little constitutional disturbance, is almost incredible, particularly when recovery resulted with little or no mental impairment; but no reasonable doubt can be entertained that it was brain matter which issued from the ear and which was examined under the microscope. Hernia cerebri in this situation is very rare, but two cases are recorded in Heath's "Dictionary of Surgery," page 176, as having been seen by the writer of the article on hernia of the brain.

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APPENDIX No. VI.

REPORT OF A CASE OF GUNSHOT WOUND CAUSING GREAT LOSS OF SKIN, TREATED BY SKIN GRAFTING.

By Surgeon-Major E. A. Mapleton, M.B., Medical Staff.

No. 297, Private A.B., 2nd Battalion, Norfolk Regiment, stationed at Benares, came to hospital on the afternoon of the 8th August 1888, suffering from a gunshot wound of the left forearm.

He had been out shooting with an ordinary fowling-piece, loaded with a mixed charge of Nos. 2 and 4 shot. He was dragging his gun after him through a hedge, the gun being full cocked, grasping it in his left hand, the arm being strongly pronated and rotated inwards. The weapon caught in the hedge and the charge exploded, passing up the forearm and away from the body. It blew away the skin and superficial fascia, exposing the surface of the muscles for a space measuring 5 inches by 3 inches. The form of the wound was a pointed oval, its direction corresponding with that of the ulna. There was very little laceration or scorching of the tissues, and only a few grains of shot remained embedded in the neighbouring skin towards the elbow.

The patient stated that there had been severe hæmorrhage, but it had entirely ceased before he arrived at the hospital.

I saw the case at once and dressed the wound with carbolic oil (1 to 40). There was considerable shock, and the patient complained frequently of feeling faint.

The case came under the care of Surgeon C. G. Woods, Medical Staff, now on field service, until the 5th September.

On the 9th August there was a slight rise of temperature (to 100·0°), and 10 grains of quinine were given, after which the temperature became and remained normal.

In three days time the whole surface of the wound became covered with minute sloughs, which were removed by a charcoal poultice, the surface being left clean and healthy.

On August 15th there was a great tendency to retraction of the skin and protrusion of the muscles, so I recommended a deep quill suture to draw up the skin and diminish as far as possible the size of the wound. This was therefore applied, five points being inserted through the whole thickness of skin and subcutaneous tissue at about three-fourths of an inch from the margin of the wound, and the skin carefully drawn up and supported on both sides.

The suture remained in until the 18th, when the passage of the threads across the exposed muscles caused much pain. The skin had formed adhesions and did not retract on the removal of the suture. The wound progressed favourably, and on the 23rd presented a clean, healthy surface, with a few granulations at the margin and at intervals on the surface. The wound still remained very large and gaping. I now suggested to Dr. Woods the advisability of resorting to skin grafting on these grounds:—

1st. There was a large surface entirely denuded of skin and connective tissue.

2nd. The situation of the wound was one in which much contraction would certainly impede the movements of the hand materially, as the contraction of cicatrisation would interfere with the flexor muscles of the forearm.

I suggested for the material to be used as grafts the skin of a frog.

In the Surgeon-General's letter, No. 4,357, dated Simla, 1st November 1887, the attention of medical officers is called to the treatment of ulcers in natives by this method, which is embodied in a letter by Surgeon-Major Ranking, 5th Bengal Cavalry, and published in the *Lancet*.

I duly explained to the patient the object of the operation and the nature of the material to be used, to which he raised no objection provided that the operation was not painful. The source of the grafts was kept a secret from the orderlies and other persons in and connected with the ward.

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On the 23rd therefore, assisted by Dr. Woods, I applied 23 grafts of skin, one-sixteenth of an inch square, taken from the abdomen of a small frog. The grafts were thoroughly cleansed, and each was placed on a vivified spot. The grafts were placed about half an inch apart in a line about half an inch from the margin of the wound.

The whole wound was then carefully covered by a piece of lint soaked in a one per cent solution of boracic acid and by a piece of gutta-percha tissue, the whole being kept in place by a light bandage. On the morning of the 24th the bandage was partially removed, and the end of the gutta-percha tissue lifted without displacing the lint. The boracic acid lotion was then allowed to trickle on to the lint until it was saturated. The bandage was then replaced.

On the 25th the lint was floated off, and it was then seen that the grafts had all become transparent and were represented by little masses of jelly-like substance. On the 30th the line of cicatrisation had advanced almost to the line of grafts, so 21 more, one eighth of an inch square, were laid down, without vivifying, in the intervals between those already established and in a row down the centre of the wound, and boracic acid dressing applied as before.

In the seven days following the application of the first set of grafts the change in the wound was wonderful; it was clean and healthy, and a line of cicatrisation was spreading fast all along the margin. After 48 hours (on September 1st) the lint was again floated off, and one graft came away with it. The others, perhaps owing to their larger size, had behaved differently to the first set, being all plainly visible as opaque patches, but showing a tendency to become transparent at the edges.

On September 3rd 20 more grafts were laid down, all of which became established.

This brought the total number of grafts to 64, of which only one failed.

On September 6th the case came under my personal care, Dr. Woods being transferred.

From time to time the lotion was changed and cicatrisation progressed apace. Granulations sprang up everywhere over the surface, and a delicate film of cicatrix was formed.

The skin external to the wound was soft and healthy without any sign of puckering or contraction.

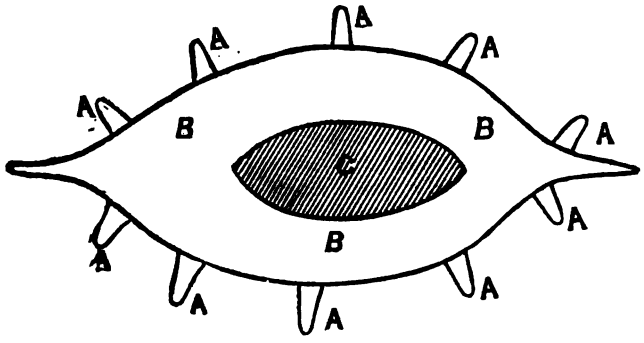
In October several shots made their appearance beneath the skin, doubtless owing to the skin regaining its normal condition. It was necessary to remove eight of these, as their position was likely to prove a source of discomfort.

On October 30th the wound was entirely healed, but the cicatrix was rather tender. He was discharged "recovered" from hospital on November 3rd to proceed to the depôt of his regiment at Sitapur.

The condition of the arm at present is as follows:—

In the line of the ulna, on the palmar surface of the forearm, is a cicatrix measuring 3·25 inches by 1·2 inch, the upper end being about 1·5 inch from the internal condyle of the humerus. The cicatrix is oval with prolonged linear processes at either end.

In the natural skin external to the cicatrix are seen the marks left by the quill suture (A. A.).



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Within the margin is a wide belt of cicatrix (B. B.), within which, forming as it were an island, is a mass of tissue (C.), oval in shape, and measuring 1·25 inch by 0·5 inch. It is softer, redder, and more vascular than ordinary cicatricial tissue, and is, I believe, a new skin formed by the drawing together of the grafts in the process of cicatrisation.

The skin surrounding the cicatrix is soft, loose, and capable of being pinched up into folds, so that there is absolutely no contraction. The whole cicatrix is of course fixed to the subjacent muscle as the subcutaneous connective tissue was entirely destroyed.

As regards the utility of the limb, it is perfect. There is a slight adhesion of the flexor sublimis digitorum, affecting only the fourth or ring finger, and this adhesion is only manifested on extreme extension of the wrist joint by a slight palmar projection of the affected finger.

The man was 87 days in hospital, a long period; but the injury occurred during the rains, a season in which all healing processes are delayed by climatic influences.

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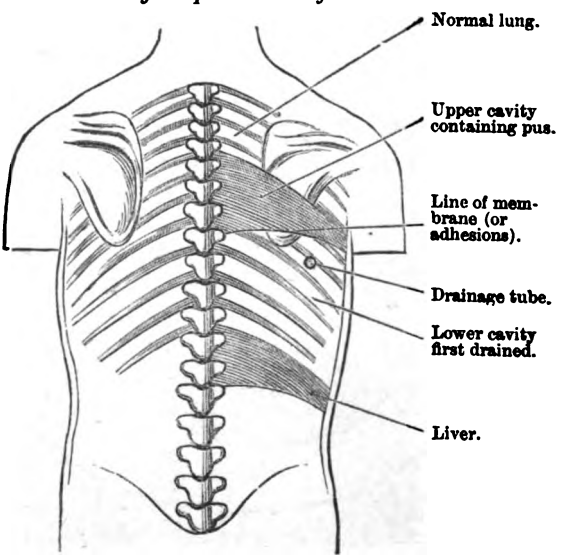
APPENDIX No. VII.

A CASE OF LOCULATED EMPYEMA.

By Surgeon W. H. Horrocks, M.B. Lond., Medical Staff.

Private J. H.——, C. and T. Corps, age 23, was admitted into the Cambridge Hospital, Aldershot, on March 6th, 1888, suffering from acute pneumonic consolidation of the lower lobe of the right lung. The case presented all the typical signs and symptoms of croupous pneumonia and on March 23rd ended in resolution, the patient's temperature becoming normal, pulse 92, and respirations 24 to the minute, the only physical signs present being slight dulness, with feeble breath sounds over the extreme right base. On March 24th the evening temperature registered 99°, on the 25th 100°·6. On March 27th the physical signs showed an extension of the dulness upwards over the right base and axilla accompanied by feeble distant bronchial breath sounds over the area of dulness and displacement of the cardiax apex one inch outside the left nipple line. On April 2nd pericardial friction was heard over the lower half of the sternum. On the 8th the dulness had mounted to the 3rd rib, the liver was pushed down and dyspnœa marked. Aspiration was at once performed and 9 ozs. of pus removed. It was not considered advisable to remove more fluid as the presence of pericarditis rendered the heart extremely susceptible to varying pleural pressure. On April 14th the fluid dulness having again increased, an incision was made between the 7th and 8th ribs in the mid-axillary line, a drainage tube inserted, and antiseptic dressings applied. Previously to making the incision, 16 ozs. of pus were removed by the aspirator, so as to diminish the pleural pressure and minimise, as far as possible, the shock of the operation to the heart, already overstrained by the presence of pericarditis. Three days after making the incision the apex of the heart was still found displaced and there was marked dulness with feeble breath sounds over the right scapular and inter-scapular regions; at the same time the patient's general condition was not good; he was restless, still complained of dyspnœa and had a temperature of 100° in the evening. Thinking there might be an accumulation of pus, the pleural cavity was carefully explored with a probe; a membrane was then detected stretching across the pleural cavity about the level of the 4th

Diagram to illustrate the position of the membrane (or line of adhesions) dividing the pleural cavity.



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intercostal space. This line was marked on the surface of the chest, and the needle of a hypodermic syringe being introduced into the area of dulness above the line, a syringeful of pus was obtained. It was now evident that a loculated empyema was present, and, as yet, the lower cavity only had been drained.

In order to drain the upper cavity a No. 8 English catheter, thoroughly carbolised, was passed through the incision which had been made for the drainage tube and gently pushed through the membrane. On withdrawing the stilette about 20 ozs. of pus escaped, a long, large-sized drainage tube was then passed over the catheter, and the latter having been withdrawn, antiseptic dressings were again applied. From this date for a time the case progressed favourably, the man put on flesh, his temperature became normal, the right side of the chest gradually retracted, and about the end of June only a long, narrow sinus remained, leading from the aperture for the drainage tube upwards and backwards. This sinus, however, now became a source of trouble, for pus began to accumulate in its upper part, owing to the drainage tube becoming compressed by the ribs falling together *pari passu* with the retraction of the chest. Accordingly, on July 11th, about one inch of the 8th rib was resected, the sinus dilated, and a larger drainage tube inserted; the sinus now rapidly healed, and early in September the drainage tube was removed.

Remarks.—(*a.*) The presence of fever, dyspnœa and displacement of the heart, three days after a strictly antiseptic incision of the thorax first led one to suspect the condition of things in the chest. (*b.*) Pericarditis is shown to be no bar to antiseptic incision, provided that the pleural cavity be partially emptied by aspiration before the incision is made, so that there may be no sudden great alteration of pressure produced in the pleura by the escape of a large quantity of fluid at the time of the operation.

After Note, January 20, 1889.—Private Higgs, in November 1888, was seized with erysipelas, and on recovery from this disease a second accumulation of pus occurred in the pleural cavity, a drainage tube has been again inserted and the case is progressing favourably. This second attack is a striking illustration of how under a lowered condition of health an apparently obliterated pleural cavity will again secrete pus. Mr. R. J. Godlee has reported several cases of this nature, a fresh accumulation of pus recurring again and again, and it seems probable that many cases of empyema heal over with a small cavity still remaining in the pleura, the cavity being dry at the time but liable to secrete pus again on any depression of the general health.

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APPENDIX No. VIII.

A CASE OF HIP DISEASE. EXCISION OF THE HEAD OF THE FEMUR.

By Surgeon W. H. Horrocks M.B. Lond., Medical Staff.

Private Hy. H.——, 1st Manchester Regiment, aged 18, was admitted into the 2nd Station Hospital, Aldershot, on March 26th, 1888, complaining of pain in the right hip and knee joints, which he had first noticed a few days before when coming home from the rifle ranges. He was transferred to the Cambridge Hospital on the 9th of April.

Condition on admission into the Cambridge Hospital.

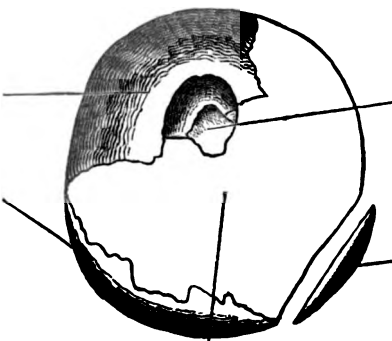
"A strumous looking boy, temperature 101°, complains of starting pains in the right hip and knee joints, especially marked in the evening when dropping off to sleep. The right leg is slightly abducted, everted and the knee flexed; on attempting to rotate or flex the limb all movement is performed by the pelvis and lumbar vertebræ, percussion over the great trochanter produces acute pain in the hip joint."

The case was diagnosed to be acute femoral epiphysitis and treated by rest, provided by extension and a long outside splint. The extension, which at first gave relief, was discontinued on May 8, owing to the appearance of deep swelling in Scarpa's triangle accompanied by great pain. The boy's condition became extremely wretched, he rapidly lost flesh, suffered from fever and night sweats, and owing to the severe pain in the hip joint refused the use of bed pans, and performed all the offices of nature in bed.

As it was now evident that suppuration had occurred around and probably in the hip joint, it was decided to administer chloroform, thoroughly examine the joint, and, if necessary, proceed to the operation of excision of the head of the femur.

On May the 8th, chloroform having been given, an incision was made into the swelling in scarpus triangle. About 20 ozs. of pus and caseous tissue escaped, and on introducing a probe a large abscess cavity was found communicating with the joint capsule. In the joint distinct crepitus could be felt on flexing and rotating the limb. The ordinary incision for excision of the head of the femur was now made along the posterior border of the great trochanter, and rapidly carried through the muscles into the joint cavity. The head of the bone was found eroded, and a small necrosed portion separated from the convexity was lying loose in the cavity.

Head of the Femur.


Cartilage still remaining
Depression for the ligamentum teres, of which only a few fragments remained.
Portion of the head lying loose in the joint cavity.
Exposed cancellous tissue all the cartilage eroded.

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The incision was then extended upwards and backwards, a bent retractor passed under the head of the femur, and the head removed with a narrow bladed saw. A patch of caseous tissue found extending along the neck was carefully scraped away; the acetabulum being slightly eroded was also scraped. The joint was finally thoroughly washed out with carbolic lotion, drainage tubes inserted, and antiseptic dressings applied.

The patient at the conclusion of the operation was placed on the "stretcher splint," and extension applied.

The stretcher splint is simply Surgeon-Major Faris' stretcher modified in the following way:—

The canvas is first divided horizontally into three pieces; the two outer remain in situ, whilst the centre piece nailed to one pole is brought under both poles and hooked on to brass nails driven into the outer side of the opposite pole. Two leather straps, padded slightly and covered with pink macintosh, are then stretched obliquely across the interval left between the two outer sheets of canvas and hooked at both ends on to brass nails driven into the outer sides of the poles. To prepare the stretcher for use it is now only necessary to cover the canvas with drawsheets and fill up the space left between the leather straps crossing above the poles and the centre piece of canvas, brought under the poles, with a drawsheet and macintosh, so that when the straps are removed on completion of the dressing a perfectly level surface will remain.

In order to dress the excision wound the stretcher is lifted up and placed on the ward iron trestles, the patient lying on the splint in such a position that his sacrum rests on the point of crossing of the leather straps. The middle piece of canvas is then unhooked and the drawsheet and macintosh removed. The upper of the two straps on the injured side is next unfastened and drawn away, when the joint will be exposed for dressing, and at the same time the patient will remain firmly supported by the second strap crossing under the thigh on the injured side, the sacrum and dorsum ilii on the sound side. On completing the dressing, the leather strap is refastened in its original position, the drawsheet and macintosh are replaced, and the centre piece of canvas brought under the poles drawsheet and macintosh is again hooked on. The stretcher is then removed from the trestles and placed on an ordinary bed, the leather straps are drawn from under the patient and cleaned so as to be ready for insertion at the next dressing.

Treated on this splint the progress of the case was very satisfactory, extension was applied in the usual manner, and to give additional support to the injured leg when the foot of the bed was raised for counter extension, two narrow slips of canvas were sewn longitudinally on to the sheet of canvas supporting the patient's legs and laced up on the front of the tibia of the injured limb. The wound, which was dressed every day for a fortnight, then every third day, granulated healthily from the bottom, and firm union gradually formed between the neck of the femur and the acetabulum. In August, three months after the operation, the wound was healed, save for a small sinus below, and the boy was able to walk about with a crutch. In December he was discharged the service, able to walk about the greater part of the day with a stick, but small sinuses, however, remained, one above mentioned and the other in scarpur triangle, discharging just enough sero-pus to stain the pads of antiseptic wool with which they were dressed. In January 1889 I heard from the boy, who was then staying at Folkestone. He stated that he was perfectly well, and had just returned from a walk of three miles.

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APPENDIX No. IX.

Abstract of "A Medico-topographical Report on the Pishin Valley, dated 13th September 1888."

By Surgeon-Major J. Barry, M.D., Medical Staff.

The Report deals in the first instance with the following subjects:—

Routes for the invasion of India; frontier defence; Pishin, its geography, shape, elevation, geological formation, area and population, rivers, lakes, productions, climate, routes from Pishin to India, &c. These matters having been already ably dealt with by Surgeon-Major O'Farrell, in the departmental vol. for 1885, are omitted in this abstract.

Diseases of Afghanistan generally.

It may be said that the higher lands of Afghanistan are, as a rule, healthy, while the lower elevations are, in the summer, hot, malarious, and very unhealthy. In the Afghan War of 1878–79–80 the diseases and difficulties of the Bolan Pass, Harnai Valley, and other routes to Southern Afghanistan had to be encountered, but now all this is obviated by the completion of the railway to the foot of the Khojak. Quetta, formerly a hot bed of enteric fever, cholera, malarial fevers, and dysentery, is fast becoming a healthy station, owing chiefly to improved sanitation. Some parts of the Khyber were during the last war more malarious and unhealthy than others, as for instance Lundi Kotal, Ali Musjid, Dakka, Jelallabad. Lundi Kotal was the most unhealthy in every way, but a good deal has been done to improve these places, especially Lundi Kotal, where a fortified serai is being built by us, and the water supply of the place improved.

Quetta.

The Khyber.

Visceral congestions.

As might be expected, from the great diurnal variations of temperature in Afghanistan, pneumonia and bronchitis are common. There is also a great liability to visceral congestions, resulting in abscess of the liver, dysentery, and diarrhœa. For the same reason troops with a malarious history suffer very heavily from ague.

Epidemic pneumonia at Kandahar.

It may be as well to remember the circumstances connected with the epidemic of pneumonia that occurred at Kandahar in the winter of 1879. It was confined to the troops that were overcrowded in barracks, those not overcrowded, as well as the men under canvas, having escaped. The barracks were cleared out, the men put in tents, and the epidemic ceased.

Cholera.

Afghanistan is in the track of cholera when it invades Europe through Asia. Certain conditions seem to determine the advent of an epidemic of this disease, in Northern India and Afghanistan, and they may be divided into the following:—

a. Cyclical.
b. Seasonal.
c. Epidemic influences.
d. Occurrence of cases in the winter.
e. Epidemic progression.

a. Cyclical.—Cholera in India has a three-year cycle, in which it successively bursts out into activity, then abates, and finally subsides (Bellew).

b. Seasonal.—It seldom appears in Northern India before the 20th April, but usually not until the monsoon sets in. The latter begins in Bengal about the middle of June; in the Punjab the last week in June. In 1879 the first case of cholera occurred at Peshawur on the 2nd May (Bellew); and at Kandahar the first case was on the 24th June (Le Messurier).

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c. Epidemic influences.—Certain conditions of the weather constituting what is known as monsoon influences, epidemic influences, or weather influences, generally usher in the hot-weather rains, and are characterised by unusual heat, high degree of humidity, and a stagnant, oppressive, muggy atmosphere.

d. Occurrence of cases in the winter.—Sporadic cases occurring during the winter are said to be the forerunners of an epidemic in the spring (in Northern India). Some cases having taken place in the Punjab in the cold season of 1878, Dr. Bryden predicted the epidemic of 1879. The disease advanced through the Khyber, where large bodies of troops were quartered, and the Indian Government consulted Dr. Bryden on the subject, who gave the following advice:—"If you march the troops out they will certainly be attacked en "route; but on the other hand, from past experience, there seems no doubt "the disease is rapidly extending into Afghanistan, and if the troops are "attacked in camp they will have to stay there until the epidemic ceases, and "the mortality is certain to be enormous." His advice was acted upon, and the second division marching down in the face of the epidemic suffered a good deal at first, but, when they arrived in India and spread out to their various stations, they shook off the disease. The troops remaining at Cabul were attacked, and suffered very severely.

e. Epidemic progression.—Its epidemic progression is well marked by the disease starting from Lower Bengal at the time of the beginning of the S.W. monsoon, and advancing with the latter towards the north-west, finally invading the Punjab.

To summarise:—If the cyclical period for an epidemic of cholera has come round. If it is the usual time of arrival of the S.W. monsoon. If the conditions of the atmosphere already mentioned are present. If sporadic cases have occurred in Northern India during the previous winter. And, finally, if its epidemic progression is marked by its advance with the monsoon towards the north-west, finally invading the Punjab, (which can be known by telegram,) then indeed we have all the indications of the approach of an epidemic, and must make all necessary arrangements for the safety of the troops. The details of the measures to be adopted when there is a threatened invasion of epidemic cholera, as well as the additional measures to be taken when it has appeared among the troops, are fully laid down in the medical regulations. In addition to the precautions therein mentioned may be considered the advisability of increasing the field-hospital accommodation. The moving of the troops is of course a matter that will be dependent upon military considerations, and the latter will decide their feasibility.

Medical arrangements for an army corps.

The medical arrangements for an army corps operating in Pishin are discussed in the Report under the following heads:—

a. Organisation and administration.

b. Hospital provision.

c. Transport.

d. Measures for the maintenance of the health of the troops.

Organisation and administration. Hospital provision.

The organisation and administration, provision for field and general hospitals, and other matters relating to the latter, are not dealt with in this Abstract.

Rest depôts on rail line of communications, and substitution of ambulance trains.

Rest depôts.—Between Kila Abdullah, the rail head, and the base line (Ruk junction on the Indus) the number of rest hospitals may be reduced to a minimum by substituting a service of ambulance trains. In this way expense may be saved and the sick may be rapidly and comfortably brought to the base. It would apply chiefly to the cool season, but even in the hot weather the pressure of sick from the front might render it absolutely necessary to evacuate the advanced general hospitals, and suitable trains should be in readiness.

Ambulance trains.

Ambulance trains may be divided into three kinds, as follows:—

1. Those improvised from ordinary passenger carriages, and goods waggons, especially fitted up, and suitable for serious cases, and for long journeys.
2. Those rapidly improvised without any fittings.
3. Ambulance trains specially constructed as such, and not improvised.

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Improvised trains specially fitted.

1. Trains improvised from existing carriages and waggons may be specially fitted up and provided with through communication on the American or Bavarian systems, ordinary first and second class carriages, such as are most commonly used on Indian lines, the former accommodating eight and the latter ten lying-down cases, without overcrowding, would require very little alteration. Waggons can be fitted on Grund's, Zavodovsky's, or the Hamburg systems. As Grund's admits of three stretchers only on the floor of the waggon, and as the springs are difficult to fix, the next seems to be a better plan. Zavodovsky's invention is well known, and is said to be a very easy mode of travelling to the patient, shock or jar being reduced to a minimum. In the Hamburg method the stretchers are suspended in double tiers by devil's claws. By either this or Zavodovsky's plan four lying-down cases can be carried in a goods waggon, with room in the centre to pass through. A door should be made at each end, with connecting platforms outside. Holes made in the floors of the waggons would answer as ventilators, and could be used for latrine purposes as well. Ridge ventilation could also be improvised, or a plank might be taken out at the upper part of the sides and hinged.

Such a train would require accommodation for a purveyor and equipment; also carriages for kitchens, surgery, medical officers, medical subordinates, and hospital attendants. In addition a train might be made up as follows:—

5 first-class carriages at 8 patients - - -	40
10 second-class „ „ 10 „ - - -	100
3 goods waggons „ 4 „ - - -	12
Total patients - - -	152

Improvised trains without fittings.

2. Trains without special fittings may be quickly improvised from ordinary goods waggons, or from second or third class carriages. From waggons, by deeply littering the floors with coarse dry grass or straw, and, if necessary putting mattresses over all; the latter would be advisable for a long journey, as the litter shifts and gets into heaps. The Epner spring stretcher, exhibited at the Berlin Exhibition of 1883, would seem to be an admirable stretcher for waggons, protecting the patient from shock and vibration, besides being cleaner than litter, with the advantage of its use as a stretcher. From second-class carriages, by the addition of mattresses, pillows, and blankets only. From third-class carriages, by placing planks across the seats, and mattresses, &c. over all. The latter carriage would contain ten persons lying down.

The composition of such a train might be as follows:—

5 goods waggons at 3 patients - - -	15
10 second-class carriages at 10 patients - - -	100
10 third-class „ „ 10 „ - - -	100
Total patients - - -	215

With two trains such as described, capable of carrying 367 lying-down cases, it can be seen how rapidly even a very large number of sick and wounded could be conveyed to the base.

Trains specially constructed, and not improvised.

3. It is unnecessary to do more than mention the desirability of having a specially constructed ambulance train in India always ready, as there would be no difficulty or loss of time in fitting it up, and it would be available in times of peace for carrying invalids.

Despatch vessels.

As there is no railway between Karachi and Bombay, despatch vessels would require to be entertained between these ports.

H.M. Indian troopships.

It is probable that some of the Indian troopships would, during such a war, call at Karachi instead of Bombay, bringing out reinforcements and taking home invalids, &c.; but should they or other troopships be not available for this service, then the invalids might be sent home either direct in a hospital ship, or they might be conveyed to Bombay by the despatch vessels, and be put on board the mail steamers; or finally, suitable cases could be sent round the Cape as opportunities offered.

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The most desirable way of sending invalids home would, undoubtedly, be in a specially constructed hospital ship, which England more than any other country is much in need of. This vessel should come out empty (at least, her passenger accommodation), so that she might be thoroughly purified for the homeward voyage. Specially constructed hospital ship.

In connexion with the hospital at Karachi a small steamer fitted with good double awnings might, with advantage, be entertained, for taking suitable cases for short trips to sea. Trips to sea.

At Karachi there are ample means for sending invalids at all times to Bombay, Madras, and England; and the same principle of rapid evacuation of the sick and wounded should be carried out here as in every other war hospital. Rapid evacuation of sick.

c. Transport.—The Report deals with this subject in its entirety, but transport for the mounted "arms" only is referred to here.

In regard to the suitability of our arrangements for affording aid to the mounted branches of the service during rapid movements, a few remarks and suggestions are submitted. They apply more especially to us, as we are so frequently opposed to savages, in whose hands we cannot leave our wounded. In cavalry this is particularly applicable, and the wounded man has often either to be carried off the field between two of his comrades, or left to be butchered by his enemies, there being little choice between the two cases. Transport for cavalry, &c.

All field hospitals and sections of the same are similar for cavalry and infantry, and the same bearer-carriage is common to both arms.

It is recommended that field hospitals for the cavalry division should be more mobile in every way than those for infantry, or that at least one section, or a division, should be so constituted as to be equal to any special service. That the medical officers, medical subordinates, and personnel generally, be selected for activity, good horsemanship, &c., and be specially trained in drill and everything necessary for rapid movements. That light waggons, well horsed, four to six horses according to the weight of the waggons, be used both for materiel and ambulance purposes. That for the latter, besides ordinary springs, the waggons should have a double floor, with spiral springs. Or that the Epner military spring stretcher be employed, alone or in conjunction with the double floor, if found necessary on trial over a rough road. So constructed and horsed, the waggons should be able to keep up with and go wherever artillery could, and patients could be carried at a rapid pace, with a minimum of discomfort and danger.

In addition it is proposed that stretchers and dandies be done away with, and, for such patients as require to be carried lying down, that the following ambulance be substituted, viz.: one small cot carried between two mules, having a driver mounted on a separate mule. With this arrangement the writer is of opinion that it would be possible for the wounded to be removed rapidly to the collecting station, or to the dressing station, and for the ambulance subsequently to rejoin the fighting line, an impossibility with man-carriage if the troops were advancing at any pace. Those slightly injured and able to ride would require no carriage, in the case of the cavalry and mounted infantry, as they would have their own horses; but it might be considered whether a small proportion of riding mules would not be advisable for the use of the artillery.

d. Measures for the maintenance of the health of the troops.—The following nine subjects discussed in the original are omitted in this abstract:— Measures for maintaining the health of the troops.

1. Guidance of medical officers by the regulations.
2. Medical inspection of troops, and food supplies for the campaign.
3. Sanitation of barracks, camps, latrines, urinaries, surface of soil. Disposal of refuse, and of the stools of patients suffering from cholera, dysentery, and enteric fever, and of the carcases of dead animals.
4. Avoidance of overcrowding.
5. Through ventilation of tents.
6. Water supply, its source, quality, analysis, and protection from contamination, as well as the precautions to be taken on the line of march; bathing and washing parades.
7. Footsoreness, chafing.
8. Clothing, especially with reference to the avoidance of chills.
9. Disinfectants.

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The remaining subjects are as follows:—

Rations.

Rations.—In regard to this subject space will only admit of the general principles of dietary being discussed, and these are to keep up the soldier's strength at all times by a sufficiency of good varied food, as well cooked as possible, and when special calls are made upon his strength, to meet them by extra food, such as plenty of fresh meat and vegetables. If the latter are not procurable, their substitutes in preserved meats and vegetables may be issued, together with various extras, such as butter, cheese, pickles, jam, &c. to ensure variety in the diet. The same general principles of dietary apply to natives as well as to Europeans. In (then) Deputy Surgeon-General Hanbury's report, "Roberts' march, Cabul to Kandahar," it is recorded that the daily issue of a large ration of excellent mutton to the native soldiers and camp followers enabled those men to go through a day's work which otherwise would have prostrated them on the road-side. This may be a very valuable precedent to remember.

General principles of dietary.

Scurvy, its prevention.

Scurvy.—"If scurvy could be prevented every other war disease ought to be "comparatively trifling" (Parkes). The scorbutic taint aggravates all diseases, but especially enteric fever, dysentery, malarious fevers, and typhus.

In Afghanistan vegetables are as a rule scarce, and constant efforts will have to be made to protect the troops from scurvy. The following measures for its prevention are advised:—

1. Attention to general principles of diet.

2. Lime juice, 1 oz., sugar, 1 oz., should be issued daily under the following conditions, namely:—First, when the full ration of potatoes and green vegetables is not issued. Secondly, when preserved provisions are given instead of fresh meat. Thirdly, when there is any appearance of the scorbutic taint.

3. For native troops and followers amchur is given, ½ oz. to 1 oz. daily, instead of lime juice.

4. Occasional inspections of the men's gums should be made, and in doubtful cases the legs should be examined for œdema or petechial spots. If there be any appearance of the scorbutic taint, it must be promptly met by a liberal supply of fresh fruits and vegetables, if procurable, and if not obtainable, by either an increase of the lime juice and amchur rations, or better, by issuing to the British troops a ration of amchur in addition to their lime juice, to be used with the food as a condiment, mixed with salt, oil, and pepper; the native troops getting a ration of lime juice as well as amchur.

5. Vinegar, ½ oz. to 1 oz. daily, per man, for cooking, and flavouring salads, &c.

6. Attention to hygienic measures generally, but especially protection against cold and wet, and avoidance of damp ground, overcrowding, &c.

Antiseptics.

Antiseptics.—Regarding antiseptics in field surgery the number has to be limited, and the best and cheapest selected. The following are those proposed:—

a. Iodoform.
b. Boric acid.
c. Carbolic acid.
d. Corrosive sublimate.

Iodoform.

a. Iodoform.—The action of iodoform is considered to be inhibitory (prevents putrefaction), but has no direct germicidal action. It diminishes pain and discharge, and is not very volatile.

It is useful as an immediate application over all small wounds, and for wounds of the natural openings of the body; also in purulent ophthalmia, mixed with arrowroot or starch, in the proportion of one third to one half iodoform, and dusted over the inside of the lids. It is employed as iodoform gauze, which may be prepared by rubbing three ounces of iodoform into eleven yards of gauze, until the latter is of a uniform yellow colour, or by merely peppering boric gauze.

Boric acid.

b. Boric acid.—This is a moderately strong antiseptic. It has no irritating or poisonous qualities, and is not volatile.

It is useful in a 35 per cent. aqueous solution for washing out the cavities of the body; also for washing the viscera if wounded and protruding. In addition, Lister's ointment is a good application to stumps under the other dressings, and for covering granulating wounds. Cotton, gauze, or lint may be impregnated with this acid by dipping them into a solution of one part of

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the latter to three of boiling water. Twenty parts of boric acid and 100 parts of vaseline or glycerine ointment make a very simple, bland, and durable application for the same purposes as Lister's ointment.

Carbolic acid.

c. Carbolic acid.—Is a powerful antiseptic if used in a concentrated solution (1 to 20), but is then poisonous and quickly absorbed by wounds and probably by the skin. It is irritating to the latter and to wounds. It is very volatile, and hence materials impregnated with it quickly lose their antiseptic properties. In a 3 per cent. aqueous solution it is very useful for disinfecting the hands, wound, instruments, sponges, wipers, &c., and in the form of "spray" should be available in general hospitals for all serious operations. It cleanses instruments from rust and from the action of corrosive sublimate.

Corrosive sublimate.

d. Corrosive sublimate.—This is generally acknowledged to be the best and most useful antiseptic yet known. It is a most powerful germicide. It is not volatile; materials impregnated with it appear to retain antiseptic properties for a very long time. The irritating and poisonous qualities of materials impregnated with a strong solution may be obviated by placing a piece of oiled paper, or varnished paper, or a deep dressing of boric lint or gauze in immediate contact with the wound. It is decomposed by contact with metals, therefore is unfit for disinfection of instruments.

It is employed:—

1. "In weak aqueous solution, 1 to 5,000, to disinfect the hands and the neighbourhood of the wound, to wet the wipers and sponges, and to irrigate the wound before applying the sutures.

2. "In strong aqueous solution, 1 to 1,000, for thorough irrigation of septic wounds.

3. "In alcoholic solution, 1 to 1,000, to preserve catgut, silk, sponges, and drainage tubes.

4. "To impregnate gauze and other materials for dressings a solution of one part bichloride and 100 parts of table salt in 40 parts of glycerine and 1,000 parts of water is poured over the materials, the superfluous fluid squeezed out, and the material dried by moderate heat."—(Koch.)

5. As guards during operations, lint soaked in 1 to 2,000 aqueous solution is a good substitute for the "spray."

6. Wood wool impregnated with ½ per cent. of the bichloride and the same quantity of glycerine is very useful for making tampon bags for checking hæmorrhage in the field.

Anderer's tablets.

7. Professor Anderer has invented tablets of sublimate sodium chloride. These should be very useful in the field for rapidly making solutions with undistilled water. If ordinary water be employed in preparing solutions of the bichloride an insoluble mercurial compound is thrown down; a little common salt rectifies this. Chloride of sodium has also the effect of making the water less irritating to the tissues.

Lister's bichloride-serum dressing.

8. Lister has discovered that by associating albumen with the bichloride a sparingly soluble albuminate is formed, having no irritating properties, while retaining full germicidal powers. In this way the strength can be increased to 1 to 100, or 1 to 75 of serum. The latter can be readily obtained from the blood of cows, horses, &c., by stirring, and so separating the fibrine. Gauze impregnated with this solution is an admirable antiseptic, and is highly absorbent. Lister recommends that during the first 24 hours 16 layers at least of this gauze should be used with a large stump.

McLeod's dressing.

9. McLeod, of Calcutta, has performed hundreds of major operations with the greatest success, and latterly without spray. He first takes the usual precautions of disinfecting the hands, instruments, &c., and of applying guards of lint soaked in 1 to 2,000 of the bichloride solution before and during the operation, irrigating with the some solution before putting in his drainage tubes and sutures. His deep dressing consists of one strip of boric gauze, peppered with iodoform, over this a strip of boric lint, and then a superficial dressing of bichloride gauze, covered with a sheet of oiled paper, and secured with a bandage. The thickness of the dressing will depend upon the amount of anticipated discharge. The strength of the bichloride solution used in preparing this gauze is 1 to 250 parts. The oiled paper is merely the cheap bamboo paper of the bazaar, put into linseed oil, the latter pressed out between two other sheets, and hung up to dry. It excludes the air and causes the discharge, if profuse, to permeate the whole dressing; this paper and

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varnished tissue paper are both good substitutes for protective in field surgery.

Incompatibility of antiseptics.

Carbolic acid is said to be incompatible with oils (probably animal and vegetable oils only), alcohol, iodine, and Condy's fluid, and should not be used with them. The ordinary carbolised oil is useless as an antiseptic. Corrosive sublimate is incompatible with iodine and with soap, hence the hands should not be washed with soap before an operation, if the bichloride be used.

Antisepsis on the battle field.

In regard to carrying out antisepsis on the battle field, there can be no question as to the importance of endeavouring to do so, in order that wounds may be kept as pure as possible from the beginning. It is therefore suggested by the writer that every medical officer in the first line of assistance should be in possession of two pairs of cotton gloves, and that the latter should be rendered antiseptic with the bichloride. Before going into action the hands should be washed in a 3 per cent. solution of carbolic acid, and gloves put on. His hands will then be surgically clean when he uncovers them. Even on the field he should have the means of purifying his hands, and those of his attendants, and the instruments, &c., as often as necessary, with either a saturated solution of carbolic acid, carried in the field companions and panniers in graduated glass botttles, a portion of which could be poured into a vessel of known capacity to form solutions of any strength, or by means of the tablets of the sublimate sodium chloride already mentioned.

Sterilization of water.

Water used in operations should, as pointed out by Esmarch, be previously sterilized by long continued boiling; then, to prevent its irritating the tissues, add table salt in the proportion of 6 to 1,000.

First field-dressing.

Owing to recent investigation, corrosive sublimate, from its being non-volatile, seems to be a better antiseptic than carbolic acid; and surgical gauze, on account of its being lighter and occupying less space than lint, would appear to be the more suitable material for a first field-dressing. This gauze compressed in several layers, and formed into two compresses (for wounds of entrance and exit), each being wrapped in varnished paper and a bichloride cambric bandage, the whole bound up in a durable rubber cover, forms Esmarch's dressing package, and so far seems to possess most of the qualities of a first field-dressing.

Aid to the wounded,

Aid to the wounded may be divided into:—

(*a.*) Before arrival at the dressing station.
(*b.*) At the dressing station.
(*c.*) At the field hospital.

(*a.*) *Before arrival at the Dressing Station.*

Before arrival at dressing station.

Medical officers on the field of battle should devote themselves first to the serious cases, such as severe hæmorrhage, wounds of the head, chest, and abdomen, and gunshot fractures, all of which should be brought to their notice. The trained attendants can then look after the slightly wounded. The chief objects to be attained when a wounded man first comes under treatment are as follows:—

1. Chemical rest to the wound, by keeping it aseptic by not defiling it by touch, or disturbing the blood, and by covering it with an antiseptic dressing.
2. Mechanical rest, by immobilization (splints, bandages, &c.).
3. Arrest of hæmorrhage, by either temporary or permanent means; as a rule the former will be sufficient until the patient can be carried to a dressing station, or field hospital, and all cases in which hæmorrhage is likely to occur during transit should be especially watched.
4. Relief of shock and pain, by the administration of words of comfort, beef tea, stimulants, warmth, hypodermic injections of morphia and cocaine.
5. Send in the wounded man to the collecting station, or to the dressing station if close by, or, if badly wounded, direct to a field hospital if not too far.

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(*b.*) *At the Dressing Station.*

At dressing station.

Here strict antisepsis should be carried out, but the aid afforded to the wounded will usually be of a temporary nature, as they should be despatched as rapidly as possible to the field hospitals. The first dressing (if any) should rarely be disturbed, unless on account of hæmorrhage. It may perhaps be necessary to readjust the splints, or apply better ones, or even a fuller antiseptic dressing outside the other. Here also beef tea, coffee, stimulants, and suitable medicines can be given. In the event of the field hospitals being too far off, or that it would take the wounded such a long time to reach them, that operations would not come under the head of "primary" ones, *i.e.*, before the imflammatory stage sets in, then all necessary operative interference is demanded at the dressing station, unless contraindicated by other causes.

(*c.*) *At the Field Hospital.*

At field hospital.

Having reached the field hospital the tally ticket is examined, and inquiries are made from the patient as to the nature of his injuries. If the wound, gunshot for example, be not severe, and be agglutinated with blood and first field dressing, and if there be no fever, severe pain, hæmorrhage, or swelling, it is still better to let it alone. If, however, the nature of a wound demand either an examination or an operation, then the sooner either or both are done the better, before the inflammatory stage shall have set in. When the latter shall have passed into the suppurating stage, and operative interference be again indicated, it may perhaps be better to send the wounded man back to the first stationary hospital (usually a large one). All, excepting the slight cases, will have to go to the rear sometime or another; and, it should be borne in mind, that it is better to run a certain amount of risk in moving the wounded than to incur the danger of overcrowding.

Distribute surgical cases.

Distribution of surgical cases.—Distribute your surgical cases in all hospitals, so as not to have too many suppurating wounds in one ward, hut, or tent. Even tents used for operations should be shifted occasionally, for fear of the ground becoming polluted. Isolate unhealthy wounds as much as possible.

Purification of wards.

Purification of wards.—Surgical wards, especially those in permanent buildings, should be periodically vacated, thoroughly cleansed, disinfected, and flushed with air.

Compressed medicines.

Compressed medicines.—In future campaigns many of the drugs now used in military surgery will doubtless be supplied in the form of discs or tabloids, which appear to be eminently suitable for field service on account of their portability, accuracy of dosage, and saving of time and trouble.

Conclusion.

Conclusion.—The history of all wars proves that there is, of necessity, a large amount of sickness from over-fatigue, loss of sleep, exposure to heat, cold, and wet, insufficient or improper food, bad water, crowded camps, &c., but the result of our recent campaigns has demonstrated the possibility of reducing the sick list very considerably. This has been due chiefly to the exertions of army medical officers, and to their increased knowledge and application of sanitary science, and of military surgery. I may mention, for example, the wonderful decrease of scurvy and septic diseases in our late wars, brought about by improved dietary, better sanitation, and the use of antiseptics. These results are highly satisfactory and creditable to all concerned.

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APPENDIX

Annual Abstract of Meteorological Observations taken

NETLEY. Lat. 50° 51′ N.

Month.	Mean Pressure.	Air Temperature.							Tension of Vapour.	Relative Humidity.		
		Mean, 9 a.m.	Means of		Abs. Min.		Abs. Max.			Per Cent.	Minimum.	
			Min.	Max.	Temp.	Day.	Temp.	Day.		Mean.	Per Cent.	Day.
January	29·943	36·0	30·8	45·6	17·8	17th	61·0	31st	·208	88·3	46·6	17th
February	30·255	38·6	32·5	47·6	21·0	17th	57·0	26th	·223	84·2	49·5	17th
March	30·013	39·8	30·6	48·7	20·0	19th	57·0	30th	·220	78·4	65·0	17th
April	29·944	44·3	35·6	55·2	26·0	18th	67·5	19th	·235	77·0	61·0	27th
May	29·960	52·0	43·8	59·2	35·0	1st	68·0	31st	·317	72·5	61·0	26, 31
June	30·130	63·5	49·0	72·0	42·5	27th	85·5	19th	·402	68·0	54·0	14, 15
July	29·992	67·7	53·9	76·0	44·0	18th	86·3	4th	·469	64·4	47·0	1st
August	29·932	65·2	51·4	74·8	41·0	15th	86·2	7th	·417	63·2	42·0	1st
September	29·899	56·9	48·0	63·8	35·0	29th	70·0	20, 22nd	·318	73·0	57·0	25th
October	30·048	46·8	36·5	55·8	22·5	26th	62·3	1st	·274	76·3	57·0	24th
November	29·642	42·2	38·9	48·6	26·0	16th	56·0	2nd, 4th	·262	84·0	72·0	17th
December	29·826	39·1	35·5	45·4	27·5	27th	55·0	8th	·217	84·0	65·0	26th
Mean	29·965	49·3	40·7	57·8	29·8	—	67·6	—	·298	76·1	56·6	—

GIBRALTAR. Lat. 36° 6′ 20′ N.

January	30·147	53·2	48·6	59·0	44·0	14th	63·0	15th	·381	85·0	72·0	3, 4th
February	30·193	52·2	47·7	58·8	40·0	11th	67·0	28th	·412	92·0	81·0	28th
March	30·025	57·7	53·7	62·0	42·5	16th	74·0	25th	·472	93·0	73·0	25th
April	29·983	59·5	50·5	65·7	43·0	19th	72·0	14, 23rd	·437	79·0	56·0	29th
May	30·048	66·4	60·0	72·1	55·0	4, 6, 15th	81·0	30th	·533	76·0	58·0	2nd
June	30·077	73·5	64·7	78·5	57·0	3rd	87·5	26th	·645	74·0	48·0	11th
July	30·089	76·7	68·8	82·1	63·0	9th	87·9	16, 28th	·772	80·5	58·0	16th
August	30·036	77·5	70·1	82·4	65·0	29th	88·5	10th	·711	80·5	64·0	25th
September	30·001	71·6	65·4	77·8	57·2	30th	85·8	12th	·588	75·0	51·0	14,15,20
October	30·092	63·3	58·0	69·2	50·2	27th	74·2	1st	·450	75·0	55·0	13th
November	29·955	59·2	54·7	66·1	45·0	29, 28th	71·8	3rd	·411	80·0	60·0	15th
December	30·059	53·1	48·7	61·5	37·7	25th	71·2	11th	·349	81·0	59·0	10th
Mean	30·058	63·6	57·6	69·6	49·1	—	76·9	—	·513	80·9	61·5	—

MALTA. Lat. 35° 53′ 49″ N.

January	29·987	53·2	49·3	53·4	46·0	17th	57·2	24th	·322	78·4	58·6	27th
February	30·089	55·3	51·0	55·5	47·0	23rd	59·4	9th	·344	77·7	61·0	24th
March	29·952	59·6	55·2	59·6	50·2	6th	68·0	16th	·385	74·8	53·6	16th
April	29·848	60·1	55·3	60·8	50·0	2nd	67·8	22nd	·396	75·5	61·0	2nd
May	29·947	68·0	62·0	73·6	56·4	26th	85·0	31st	·457	65·2	39·8	30th
June	30·003	75·2	69·5	78·9	65·2	9th	86·8	27th	·604	69·6	38·0	2nd
July	30·000	80·8	75·1	85·2	71·0	3rd	95·4	24th	·693	67·0	51·8	7th
August	29·971	82·9	77·2	87·0	74·0	10, 25th	94·2	18th	·715	63·3	42·4	18th
September	29·970	79·9	74·4	83·6	69·0	24th	90·2	5th	·715	59·8	51·0	11th
October	29·982	69·4	64·0	70·9	53·4	27th	94·2	1st	·522	60·9	55·2	24th
November	29·906	63·8	59·9	67·4	54·8	22nd	73·2	1st	·423	74·8	42·8	21st
December	29·961	59·0	55·8	63·5	47·2	31st	67·2	3rd	·383	76·6	60·2	24th
Mean	29·965	67·2	62·4	69·9	57·0	—	78·2	—	·496	71·0	51·3	—

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No. X.

at Netley and Foreign Stations in the Year 1887.

Long. 1° 20′ W. Height of Barometer Cistern above Sea, 47 feet.

Mean Amount of Cloudiness.	Rainfall.			Weather.								Wind.							
				Number of Days of								Means of Observations under each Point per Month.							
	Total.	Max.	Day.	Rain.	Snow.	Hail.	Thunder Storm.	Fog.	Clear Sky.	Overcast.	Gales.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Calm.
8·0	2·80	0·67	3rd	13	1	—	—	7	4	23	1	4·5	2·5	6·0	—	6·0	3·5	7·0	0·5	1·0
5·9	0·91	0·28	2nd	10	—	—	—	—	8	12	—	7·5	4·5	3·5	1·5	3·0	5·0	1·0	1·0	1·0
6·2	1·44	0·42	22nd	8	2	1	—	1	7	13	1	7·5	4·0	4·0	1·5	2·0	2·5	6·5	2·5	0·5
5·7	1·16	0·27	26th	10	—	—	—	—	9	14	4	0·5	12·5	—	2·5	0·5	7·0	0·5	6·5	—
8·0	1·03	0·27	6th	12	—	—	—	—	2	28	1	3·0	12·0	1·0	2·0	—	7·0	—	6·0	—
4·8	0·92	0·73	2nd	3	—	—	—	—	14	16	—	—	12·0	—	5·0	0·5	9·0	0·5	3·0	—
5·5	0·66	0·31	26th	7	—	—	—	—	8	23	1	1·0	2·5	—	3·0	—	20·0	—	4·5	—
5·3	1·87	1·14	30th	9	—	—	—	—	9	22	1	—	2·0	0·5	9·0	1·0	7·5	—	11·0	—
6·9	2·65	0·80	1st	15	—	1	—	—	4	27	—	—	8·0	—	1·0	1·5	12·0	0·5	7·0	—
6·5	1·30	0·83	29th	6	—	—	—	—	6	25	—	2·0	8·5	—	1·5	—	8·5	—	10·5	—
7·8	3·82	0·82	7th	16	—	—	—	—	3	27	2	1·0	14·0	0·5	2·5	0·5	8·5	1·0	2·0	—
7·0	1·90	0·40	12th	14	2	—	—	—	2	17	3	2·0	8·5	—	1·0	0·5	13·5	—	5·5	—
6·4	1·75	0·50	—	10·2	0·4	0·1	—	0·7	6·3	20·5	1·1	2·4	7·6	1·3	2·7	1·3	8·7	1·4	5·0	0·2

Long. 5° 20′ 53″ W. Height of Barometer Cistern above Sea, 53 feet.

4·0	2·54	1·34	21st	9	—	—	—	—	13·0	3·0	—	—	8·0	6·0	—	—	0·5	6·5	10·0	—
2·5	2·93	1·15	15th	9	—	—	—	—	20·0	2·0	—	—	4·5	—	—	—	—	2·0	13·0	2·5
4·5	7·52	1·95	30th	13	—	—	—	—	10·5	4·5	16	—	5·0	12·0	—	—	—	6·0	8·0	—
3·0	8·05	6·48	19th	9	—	—	—	—	20·0	2·5	—	—	2·5	8·0	0·5	—	—	12·5	6·5	—
2·0	1·32	0·58	2nd	7	—	—	—	—	24·5	2·0	—	—	3·0	12·0	—	—	0·5	11·0	4·5	—
1·0	0·09	0·07	1st	2	—	—	—	—	24·0	—	—	5	4·0	14·0	—	—	—	9·0	2·5	—
1·5	0·09	0·08	30th	2	—	—	—	—	24·0	1·0	—	—	1·5	18·0	2·0	1·0	2·0	6·5	—	—
1·5	0·01	0·01	22nd	1	—	—	—	—	28·0	1·5	—	—	2·5	12·0	—	—	—	16·5	—	—
4·5	0·20	0·56	23rd	5	—	—	—	—	13·0	7·0	—	—	1·0	10·0	—	—	1·0	14·5	3·5	—
5·0	2·46	1·78	6th	5	—	—	1	—	13·0	8·0	2	—	3·5	13·0	0·5	—	0·5	6·0	7·5	—
6·0	6·73	1·31	24th	17	—	—	—	—	7·0	13·0	1	—	0·5	2·5	1·0	—	1·0	13·5	11·5	—
5·0	12·72	4·20	31st	9	—	—	—	—	15·0	9·0	3	—	0·5	2·0	—	—	—	13·5	15·0	—
3·3	3·72	1·62	—	7·3	—	—	0·1	—	17·7	4·4	1·8	0·04	3·0	9·1	0·3	0·1	0·4	9·8	6·8	0·2

Long. 14° 30′ 54″ E. Height of Barometer Cistern above Sea, 70 feet.

5·8	2·92	0·87	11th	15	—	—	—	—	5·0	10·0	—	1·0	4·0	2·0	5·0	2·0	4·0	2·0	11·0	—
5·0	1·89	0·93	19th	8	—	—	—	—	2·0	5·0	—	—	9·0	2·0	6·0	—	2·0	—	9·0	—
5·5	0·23	0·15	21st	2	—	—	—	—	9·0	7·0	—	1·0	4·0	2·0	8·0	3·0	4·0	—	9·0	—
5·7	1·40	0·32	17th	8	—	—	—	—	6·0	19·0	—	3·0	3·0	2·0	9·0	—	1·0	3·0	9·0	—
3·4	0·18	0·18	25th	1	—	—	—	—	16·0	5·0	—	2·0	4·0	—	5·0	2·0	3·0	2·0	13·0	—
2·2	0·15	0·15	7th	1	—	—	—	—	18·0	1·0	—	1·0	8·0	2·0	4·0	1·0	2·0	—	12·0	—
1·4	—	—	—	—	—	—	—	—	24·0	2·0	—	4·0	11·0	2·0	2·0	—	1·0	2·0	9·0	—
4·4	0·23	0·14	6th	3	—	—	—	—	18·0	2·0	—	2·0	5·0	3·0	5·0	—	2·0	3·0	11·0	—
3·3	0·35	0·15	22nd	3	—	—	—	—	16·0	4·0	—	2·0	3·0	2·0	7·0	—	8·0	1·0	7·0	—
5·7	11·42	5·45	19th	13	—	1	7	—	7·0	14·0	—	5·0	6·0	—	5·0	—	5·0	1·0	9·0	—
5·3	1·38	0·35	11th	9	—	—	—	—	8·0	8·0	—	—	3·0	—	6·0	1·0	8·0	4·0	8·0	—
5·3	0·97	0·17	26, 30	10	—	—	—	—	7·0	7·0	—	1·0	—	—	6·0	1·0	7·0	3·0	13·0	—
4·4	1·76	0·73	—	6·1	—	0·1	0·6	—	11·3	7·0	—	1·8	5·0	1·4	5·7	0·8	3·9	1·7	10·0	—

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Appendix

Annual Abstract of Meteorological Observations taken

Scutari Cemetery. Lat. 41° 0′ N.

Month.	Mean Pressure.	Air Temperature.							Tension of Vapour.	Relative Humidity.		
		Mean, 9 a.m.	Means of		Abs. Min.		Abs. Max.			Per Cent.	Minimum.	
			Min.	Max.	Temp.	Day.	Temp.	Day.		Mean.	Per Cent.	Day.
January	30·107	42·7	37·3	49·6	25·6	22nd	60·2	2nd	·228	79·4	57·0	6th
February	30·232	40·6	34·1	49·0	27·0	21st	63·2	18th	·209	78·8	61·8	18th
March	30·030	47·9	40·4	58·6	26·4	23rd	76·6	17th	·206	73·3	48·6	17th
April	29·934	53·1	44·1	63·2	33·8	3rd	77·4	24th	·298	72·5	51·4	12th
May	29·916	67·1	54·1	80·7	39·2	2nd	91·0	19th	·406	63·2	45·8	21st
June	29·915	72·7	59·1	84·6	55·8	17th	95·6	4th	·470	57·6	39·6	17th
July	29·892	78·9	63·3	91·0	54·8	10th	99·0	24th	·511	52·1	34·4	17th
August	29·848	80·2	67·3	88·9	59·4	9th	100·4	16th	·543	53·0	37·4	8th
September	29·878	71·4	62·0	81·9	50·6	25th	88·4	7th	·580	73·9	60·0	27th
October	29·977	65·0	57·1	73·6	43·6	25th	84·6	15th	·475	75·5	60·6	13th
November	29·978	54·1	47·1	62·0	38·0	18, 19th	72·6	3rd	·354	78·9	57·6	21st
December	30·094	48·9	42·9	56·9	33·0	15, 16th	65·0	31st	·280	79·7	57·8	31st
Mean	29·983	60·2	50·7	70·0	40·6	—	81·1	—	·380	68·1	51·0	—

Nicosia, Cyprus. Lat. 35° 10′ 50″ N.

January	29·165	47·5	37·9	55·2	28·0	22nd	62·0	11th	·275	81·6	31·0	26th
February	29·105	49·3	36·8	57·9	30·6	27th	64·4	17th	·288	79·3	44·0	6th
March	29·134	53·6	42·3	63·4	35·4	19th	72·6	18th	·206	69·9	51·3	19th
April	28·871	65·6	47·2	72·8	40·4	4th,14th	92·0	2nd	·267	58·2	30·0	23rd
May*	29·032	76·2	52·0	86·1	45·2	3rd	97·2	8th	·331	40·0	24·0	7th
June												
July												
August												
September												
October												
November												
December												
Mean	29·061	58·4	43·2	67·5	35·9	—	77·6	—	·301	65·8	36·0	—

* 25 days only.

Polymedia, Cyprus. Lat. 34° 40′ N.

January	29·983	53·2	39·0	63·2	28·0	26th	72·0	11th	·352	85·5	74·0	14th
February	30·112	56·5	40·1	66·2	35·0	27th	73·0	21st	·394	81·0	65·0	1st
March	29·935	62·7	42·5	71·3	34·0	23rd	83·0	19th	·451	77·0	74·0	5th
April	29·857	69·8	45·6	78·2	40·0	22nd	86·5	19th	·576	76·0	33·0	23rd
May	30·091	80·0	53·2	88·6	37·5	1st	97·5	9th	·730	75·0	62·0	4th
June*	29·795	90·5	63·1	98·6	59·0	1st	102·2	10th	·302	81·0	76·0	1st
July												
August												
September												
October†	29·945	85·5	61·1	93·6	47·0	31st	97·0	20th	·896	72·0	54·0	27th
November	29·928	70·8	49·1	80·2	40·0	15th	93·0	2nd	·576	71·8	44·0	12th
December	29·878	60·0	46·9	69·7	35·0	18th	90·0	23rd	·434	82·0	48·0	10th
Mean	29·947	69·9	48·8	78·8	38·4	—	88·2	—	·523	77·9	59·9	—

* Observations taken for 10 days only (June 1st to 10th inclusive).
† Observations taken for 20 days only (October 12th to 31st inclusive).

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No. X.—*continued.*

at Netley and Foreign Stations in the year 1887.

Long. 29° 3′ E. Height of Barometer Cistern above Sea, 60 feet.

Mean Amount of Cloudiness.	Rainfall.			Weather.								Wind.								
				Number of Days of								Means of Observations under each Point per Month.								
	Total.	Max.	Day.	Rain.	Snow.	Hail.	Thunder Storm.	Fog.	Clear Sky.	Overcast.	Gales.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Calm.
6·6	2·10	0·40	19th	16	4	—	—	—	6·5	15·0	—	7·0	7·5	5·0	0·5	2·5	2·5	2·0	—	4·0
5·8	2·14	1·05	18th	12	4	—	—	—	11·0	12·5	—	4·5	9·5	6·5	—	1·5	0·5	1·5	0·5	3·5
5·5	2·64	0·95	27th	14	2	1	—	2	11·5	15·5	—	5·5	4·0	2·0	—	3·0	8·0	—	—	8·5
5·3	2·34	1·80	1st	10	—	—	—	—	10·0	10·0	—	1·5	12·5	1·5	0·5	3·5	7·0	1·0	—	2·5
3·5	0·17	0·11	11th	3	—	—	1	—	18·0	4·5	—	4·5	5·0	—	—	5·5	8·5	1·5	—	6·0
3·4	1·26	0·85	13th	5	—	—	1	1	18·5	5·0	—	9·0	11·0	2·0	0·5	1·5	5·5	—	—	0·5
2·2	0·26	0·25	7th	2	—	—	1	1	21·0	2·0	—	3·5	17·5	5·0	—	0·5	2·0	—	—	1·5
2·8	3·35	2·05	30th	4	—	—	2	—	21·5	5·5	—	6·0	16·0	4·0	—	2·0	2·0	—	—	0·5
4·6	3·82	1·78	15th	11	—	—	4	1	13·5	8·5	—	3·0	11·0	1·5	0·5	3·5	4·5	1·5	—	4·5
6·6	2·53	0·98	24th	12	—	—	—	—	5·5	15·0	—	6·5	5·0	2·0	1·0	3·5	6·0	1·5	—	5·5
5·5	5·06	1·37	26th	14	—	—	—	—	12·5	13·5	1	2·5	3·5	2·5	3·0	6·0	6·5	0·5	0·5	5·0
7·0	5·59	1·25	29th	18	1	3	3	1	4·5	17·5	2	5·0	3·0	3·0	3·0	6·0	4·5	2·5	0·5	3·5
4·9	2·65	1·07	—	10	0·92	0·35	1·0	0·5	12·83	10·37	0·25	4·82	8·79	2·02	0·75	3·25	4·79	1·0	0·12	3·87

Long. 33° 21′ 15″ E. Height of Barometer Cistern above Sea, 592 feet.

5·0	2·94	0·85	13th	10·0	1·0	1·0	1·0	—	12·0	10·0	7·0	4·5	8·0	9·0	1·0	—	1·0	3·0	4·0	0·5
4·5	0·95	0·35	8th	5·0	—	—	1·0	—	11·0	9·0	4·0	2·0	8·0	6·0	2·0	—	2·0	5·0	3·0	—
4·5	1·02	0·45	6th	9·0	—	—	—	—	11·5	8·0	—	3·0	6·0	8·0	2·5	4·5	3·5	2·5	1·0	—
4·5	0·94	0·37	30th	7·0	—	—	2·0	—	15·0	7·0	—	2·0	1·0	10·0	3·0	1·5	2·5	6·0	4·0	—
2·5	0·01	0·01	20th	1·0	—	—	—	—	18·0	2·0	—	1·0	1·0	4·0	—	1·0	1·0	14·0	3·0	—
4·2	1·17	0·40	—	6·4	0·2	0·2	0·8	—	13·5	7·2	2·2	2·5	4·8	7·4	1·7	1·4	2·0	6·1	3·0	0·1

Long. 32° 2′ E. Height of Barometer Cistern above Sea, 460 feet.

5·5	3·97	1·05	10th	8·0	—	—	—	—	5·0	7·0	—	6·5	8·5	7·0	—	—	—	5·0	3·5	0·5
4·5	1·39	0·85	25th	3·0	—	—	—	—	5·0	4·0	—	6·0	2·0	7·0	6·0	2·0	1·0	2·0	2·0	—
4·0	—	—	—	—	—	—	—	—	11·0	2·0	—	2·0	6·0	6·0	1·0	7·0	—	8·0	1·0	—
5·0	0·29	0·29	6th	1·0	—	—	2·0	—	9·0	4·0	—	4·5	—	5·0	0·5	11·0	—	7·5	1·5	—
3·5	0·21	0·09	1st	3·0	—	—	—	—	12·0	—	—	—	—	1·0	4·0	16·5	0·5	7·5	0·5	—
2·0	—	—	—	—	—	—	—	—	8·0	—	—	3·0	—	1·0	—	4·0	—	2·0	—	—
3·0	—	—	—	—	—	—	—	—	13·0	2·0	—	—	—	2·0	—	7·0	5·0	6·0	—	—
4·6	1·70	0·85	5th	3·0	—	—	1·0	—	9·0	4·0	—	9·0	2·0	1·0	—	4·0	1·0	9·0	4·0	—
3·0	7·34	2·56	14th	10·0	—	—	6·0	—	9·0	4·0	—	4·0	—	1·0	—	—	6·0	18·0	2·0	—
3·9	1·65	0·63	—	3·1	—	—	1·0	—	9·0	3·0	—	3·9	2·0	3·4	1·2	5·7	1·5	7·2	1·6	0·03

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Appendix

Annual Abstract of Meteorological Observations taken

Mount Troodos, Cyprus. Lat. 34° 51′ N.

Month.	Mean Pressure.	Air Temperature.							Tension of Vapour.	Relative Humidity.		
		Mean, 9 a.m.	Means of		Abs. Min.		Abs. Max.			Per Cent.	Min.	
			Min.	Max.	Temp.	Day.	Temp.	Day.		Mean.	Per Cent.	Day.
January - -												
February - -												
March - -												
April - -												
May - -												
June* - -	29·195	66·9	50·3	80·8	44·0	15th	92·0	19th	·444	67·4	42·3	27th
July - -	29·130	66·5	55·3	84·9	50·0	10, 11th	94·0	4th	·473	86·0	54·8	14th
August - -	29·120	71·2	57·0	85·6	49·5	31st	95·0	24th	·496	61·9	22·0	2nd
September -	29·190	64·7	53·7	76·8	43·0	18th	93·0	2nd	·443	68·2	55·0	25th
October† - -	29·340	65·8	54·6	67·8	52·0	5th, 6th	73·0	3rd	·453	61·8	46·1	5th
November -												
December -												
Mean -	29·195	67·2	54·1	79·1	48·7	—	87·4	—	·461	69·1	44·0	—

* For 19 days only. † For 9 days only.

Fort Napier, Natal. Lat. 29° 3′ S.

January - -	29·870	71·8	60·2	82·6	54·5	7, 24th	100·8	3, 4th	·596	70·6	37·0	3rd
February -	29·850	73·2	61·8	81·7	50·5	7th	96·0	9th	·618	70·4	35·0	16th
March - -	29·836	69·5	58·3	80·0	47·0	30th	90·0	4th	·562	76·5	45·0	31st
April - -	29·948	67·7	53·1	78·3	38·5	23rd	89·0	14th	·502	77·7	53·0	26th
May - -	29·944	61·8	47·8	72·9	40·0	7th	82·5	12th	·447	83·6	41·0	12th
June - -	30·079	58·6	43·7	71·7	35·2	13th	82·5	2nd	·421	79·8	36·0	18th
July - -	29·996	59·1	44·3	72·8	37·2	13th	84·8	29th	·360	72·0	26·9	29th
August - -	29·957	61·2	47·3	73·9	38·5	1st, 2nd	85·4	8th	·330	59·2	26·4	9th
September -	30·033	66·2	50·4	76·6	41·0	7th	95·5	30th	·346	54·0	27·0	24, 25
October - -	29·886	69·8	54·7	81·4	42·6	26th	101·0	5th	·474	61·6	30·0	8th
November -	29·887	69·9	55·0	79·5	45·2	6th	104·8	12th	·479	54·9	27·0	8th
December -	29·821	71·9	59·8	80·8	50·0	12th	104·2	23rd	·475	59·9	26·0	11th
Mean -	29·929	66·7	53·0	77·7	41·7	—	93·0	—	·467	68·3	32·9	—

Sierra Leone. Lat. 8° 29′ 30″ N.

January - -	29·896	80·8	76·8	94·3	70·0	11th	98·0	10th	·949	85·0	62·6	3rd
February -	29·901	82·8	79·0	92·1	72·0	16th	97·0	1st	·943	90·0	75·1	16th
March - -	29·910	80·2	82·3	94·0	72·0	28th	98·0	31st	·953	93·5	72·3	28th
April - -	29·904	83·7	72·8	103·1	70·0	28th	105·0	13th	1·054	86·0	69·9	7th
May - -	29·906	81·8	66·1	103·5	60·4	26th	105·0	3rd	1·030	93·0	69·0	26th
June - -	29·803	76·4	65·5	99·2	60·6	10th	100·9	15th	·796	85·5	65·2	6th
July - -	29·929	72·0	65·0	100·4	77·0	6th	100·5	1st	·702	92·5	63·2	4th
August - -	29·899	72·9	60·8	100·4	60·7	10th	100·5	1st	·701	91·5	64·3	3rd
September -	29·910	74·1	62·4	100·4	60·8	2nd	100·5	7th	·828	90·3	64·6	2nd
October - -	29·884	72·6	70·1	100·4	70·0	11th	100·5	5th	·878	88·6	62·4	10th
November -	29·885	79·3	70·2	100·4	70·0	10th	100·5	2nd	·855	85·3	61·2	3rd
December -	29·850	79·7	70·2	100·4	81·0	5th	100·5	2nd	·912	84·2	62·4	1st
Mean -	29·889	78·0	70·1	98·9	68·7	—	100·5	—	·883	88·7	66·0	—

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No. X.— *continued.*

at Netley and Foreign Stations in the Year 1887.

Long. 32° 54′ E. Height of Barometer Cistern above Sea, 5,720 feet.

Mean Amount of Cloudiness.	Rainfall.			Weather.								Wind.								
				Number of Days of								Means of Observations under each Point per Month.								
	Total.	Max.	Day.	Rain.	Snow.	Hail.	Thunder Storm.	Fog.	Clear Sky.	Overcast.	Gales.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Calm.
3·0	—	—	—	—	—	—	—	—	9·0	—	—	0·5	1·0	2·5	0·5	5·0	0·5	7·0	2·0	—
3·2	0·70	0·25	10th	2	—	—	—	—	26·0	—	—	5·0	4·5	9·5	2·5	4·0	0·5	2·5	2·5	—
3·0	0·45	0·45	1st	1	—	—	—	—	14·0	3·0	—	2·0	1·0	5·0	4·0	7·0	1·0	5·0	6·0	—
4·5	0·91	0·45	11th	6	—	—	1·	1·	12·0	9·0	—	5·0	2·5	3·5	3·5	6·5	1·0	2·5	5·5	—
1·5	—	—	—	—	—	—	—	—	8·5	—	—	1·0	—	—	—	—	—	5·0	3·0	—
3·4	·412	0·23	—	1·8	—	—	·2	·2	13·9	2·4	—	2·7	1·8	4·1	2·1	4·5	0·6	4·0	3·8	—

Long. 30° 2′ E. Height of Barometer Cistern above Sea, 2,220 feet.

5·3	6·62	3·75	17th	12·0	—	—	3	—	13·5	15·0	2	5·0	4·5	8·5	3·5	4·0	—	—	1·0	4·5
6·3	11·30	2·30	11th	16·0	—	—	7	—	8·0	15·0	1	4·5	4·5	4·0	3·0	6·0	0·5	1·0	0·5	4·0
5·3	10·69	4·00	2nd	11·0	—	—	2	—	12·5	12·0	1	2·5	4·0	3·5	5·5	3·5	0·5	—	2·0	9·5
4·2	2·03	1·20	3rd	8·0	—	1·0	2	1	16·0	9·0	2	1·5	4·5	4·5	3·5	3·5	1·5	1·0	—	10·0
3·3	1·20	1·15	2nd	3·0	—	—	1	2	20·0	7·5	2	0·5	4·5	4·5	1·5	1·0	0·5	1·5	1·0	16·0
2·0	0·08	0·08	9th	1·0	—	—	1	1	23·5	4·5	1	2·0	4·5	1·5	2·0	0·5	2·5	0·5	1·0	15·5
1·5	1·35	1·30	2nd	2·0	—	—	—	—	27·5	3·5	1	2·0	4·0	1·5	2·5	1·0	2·5	—	3·0	14·5
4·2	2·99	1·40	26th	6·0	—	—	4	—	15·5	10·5	4	1·5	2·0	5·0	8·0	1·0	1·5	1·0	3·5	7·5
3·2	0·12	0·05	27th	4·0	—	—	4	1	19·0	9·0	4	0·5	1·0	12·5	7·5	1·0	—	1·0	1·5	5·0
6·1	1·33	0·25	9th	13·0	—	—	3	—	10·5	16·0	3	3·5	6·5	4·5	3·0	4·0	1·5	0·5	3·0	4·5
5·5	5·06	1·96	19th	12·0	—	—	5	—	13·0	15·5	6	2·0	4·0	8·5	3·0	4·0	0·5	0·5	3·0	4·5
5·5	3·59	1·12	15th	10·0	—	—	5	—	10·0	15·5	5	2·0	6·0	8·0	2·5	4·5	—	1·0	1·5	5·5
4·3	3·80	1·54	—	8·1	—	0·1	3	0·4	15·7	11·1	2·7	2·3	4·2	5·5	3·8	2·8	0·9	0·7	1·7	8·4

Long. 13° 9′ 17″ W. Height of Barometer Cistern above Sea, 224 feet.

2·5	0·55	0·35	14th	2	—	—	—	—	29·0	—	—	9·0	—	5·0	1·0	8·0	1·0	1·0	—	6·0
2·4	—	—	—	—	—	—	—	—	28·0	—	—	9·0	2·0	5·0	1·0	8·0	1·0	1·0	1·0	—
2·3	3·28	1·90	14th	5	—	—	4	—	26·0	—	—	11·0	2·0	3·0	2·0	6·0	1·0	2·0	2·0	2·0
4·6	6·42	2·54	15th	9	—	—	7	—	7·0	—	—	7·0	1·0	1·0	1·0	4·0	9·0	2·0	5·0	—
3·3	8·16	1·50	16th	15	—	—	9	—	19·0	—	—	5·0	2·0	3·0	5·0	6·0	3·0	5·0	2·0	—
3·4	19·09	4·35	27th	17	—	—	7	—	23·0	—	—	7·0	3·0	1·0	3·0	5·0	3·0	1·0	2·0	5·0
7·0	28·40	4·95	7th	20	—	—	5	—	2·0	15·0	—	7·0	1·0	7·0	1·0	5·0	1·0	9·0	—	—
8·2	23·50	4·20	29th	22	—	—	—	—	—	21·0	—	6·0	—	10·0	—	2·0	—	13·0	—	—
8·2	39·52	5·00	13th	24	—	—	15	—	—	20·0	—	7·0	—	6·0	—	4·0	—	13·0	—	—
8·0	21·07	2·65	24th	18	—	—	16	—	—	20·0	—	4·0	—	11·0	—	6·0	—	10·0	—	—
8·0	8·31	1·87	17th	10	—	—	9	—	—	17·0	—	3·0	—	9·0	—	4·0	—	14·0	—	—
9·0	0·82	0·82	4th	1	—	—	1	—	—	29·0	—	4·0	—	11·0	—	8·0	—	8·0	—	—
5·5	13·27	2·51	—	11·9	—	—	6·1	—	11·6	10·1	—	6·6	0·9	6·0	1·1	5·5	1·6	6·6	1·0	1·1

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Appendix

Annual Abstract of Meteorological Observations taken

Barbados. Lat. 13° 7′ 39″ N.

Month.	Mean Pressure.	Air Temperature. Mean, 9 a.m.	Means of Min.	Means of Max.	Abs. Min. Temp.	Abs. Min. Day.	Abs. Max. Temp.	Abs. Max. Day.	Tension of Vapour.	Relative Humidity. Per Cent. Mean.	Min. Per Cent.	Min. Day.
January	30·060	79·0	*	82·4	*	*	84·0	7th	·702	71·4	53·0	21st
February	30·165	76·7	*	78·7	*	*	80·0	15th	·727	74·2	60·0	28th
March	30·028	79·5	68·3	83·0	63·0	10th	60·0	10th	·692	67·0	48·0	30th
April	30·027	81·2	71·8	83·0	66·0	1st	70·0	11th	·672	64·0	48·0	4th
May	30·010	82·6	73·3	83·1	70·0	2nd	86·0	17th	·781	72·0	58·0	1st
June	30·004	82·6	73·0	83·6	71·0	19, 25th	86·0	4,5, 30th	·807	72·0	64·0	9, 23rd
July	30·039	82·7	74·9	84·0	71·0	20th	86·0	10th	·811	68·0	60·0	2nd
August	29·929	83·0	74·7	85·5	71·0	18, 19th	88·0	18th	·842	72·0	55·0	14th
September	29·975	84·3	74·4	87·0	72·0	13th	89·0	13, 14th	·865	72·0	61·0	2nd
October	29·905	83·3	73·2	86·3	72·0	28th	89·0	8th	·832	72·0	61·0	30th
November	29·944	81·8	73·3	84·7	70·0	18th	88·0	5, 26th	·818	76·0	61·0	3rd
December	29·915	80·9	72·9	84·7	70·0	9th	87·0	1st	·768	75·0	58·0	25th
Mean	30·000	81·5	73·0	83·8	61·5	—	82·7	—	·776	71·3	57·2	—

* Minimum thermometer out of repair.

Newcastle, Jamaica. Lat. 15° 6′ N.

Month.	Mean Pressure.	Air Temperature. Mean, 9 a.m.	
January	29·931	62·0	Instruments broken.
February	29·861	62·0	
March	30·105	63·0	
April	30·260	64·0	
May	30·213	66·0	
June	29·943	68·0	
July	29·989	69·0	
August	29·973	63·0	
September	29·936	68·0	
October	29·918	67·0	
November	29·917	65·0	
December	29·955	62·0	— — — — — — — — — —
Mean	30·000	65·3	— — — — — — — — — —

Up. Park Camp, Jamaica. Lat. 17° 59′ N.

Month.	Mean Pressure.	Air Temperature. Mean, 9 a.m.	Means of Min.	Means of Max.	Abs. Min. Temp.	Abs. Min. Day.	Abs. Max. Temp.	Abs. Max. Day.	Tension of Vapour.	Relative Humidity. Per Cent. Mean.	Min. Per Cent.	Min. Day.
January	30·066	81·2	65·7	89·6	61·0	25th	93·0	8th	·658	58·7	46·0	16th
February	30·122	81·0	64·0	90·6	62·0	28th	95·0	1st	·633	58·0	47·0	4th
March	30·042	81·9	64·2	89·6	51·0	11th	96·0	21st	·615	52·1	45·0	16th
April	30·037	84·0	68·0	85·0	63·5	5th	93·8	21st	·717	66·1	48·0	24th
May	29·987	84·1	68·9	85·2	65·0	4th	90·0	4th	·763	62·0	50·0	4th
June	30·003	84·6	69·0	84·0	67·0	6th	88·0	2nd	·797	68·0	57·0	6th
July	29·976	85·6	69·0	84·0	68·0	24th	91·0	8th	·775	61·0	55·0	7th
August	29·952	88·1	68·8	82·0	64·0	7th	89·0	27th	·805	64·0	58·0	1st
September	29·983	86·1	68·8	82·8	64·0	19th	91·2	12th	·832	63·7	55·0	27th
October	29·222	84·6	67·8	84·0	65·5	31st	91·0	26th	·834	65·6	52·0	13th
November	30·011	82·5	66·0	82·0	64·8	13th	90·5	16th	·820	64·7	54·4	9th
December	30·026	81·9	63·1	81·6	58·5	7th	88·0	22nd	·764	64·7	51·0	6th
Mean	29·952	83·8	66·8	84·2	62·8	—	91·4	—	·751	61·5	51·5	—

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No. X.—*continued.*

at Netley and Foreign Stations in the Year 1887.

Long. 59° 40′ 8″ W. Height of Barometer Cistern above Sea, 30·7 feet.

Mean Amount of Cloudiness.	Rainfall.			Weather.								Wind.								
				Number of Days of								Means of Observations under each Point per Month.								
	Total.	Max.	Day.	Rain.	Snow.	Hail.	Thunder Storm.	Fog.	Clear Sky.	Overcast.	Gales.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Calm.
3·5	2·02	0·25	26th	17	—	—	—	—	15·5	—	—	—	28·0	3·0	—	—	—	—	—	—
3·2	1·09	0·20	28th	12	—	—	—	—	10·0	—	—	—	27·5	0·5	—	—	—	—	—	—
3·2	0·97	0·45	12th	6	—	—	—	—	17·0	—	—	—	28·0	2·0	1·0	—	—	—	—	—
3·8	0·20	0·10	8th	3	—	—	—	—	13·0	—	—	—	26·0	4·0	—	—	—	—	—	—
4·5	7·07	2·0	3rd	17	—	—	—	—	7·0	—	—	—	13·0	16·0	2·0	—	—	—	—	—
4·6	6·56	1·50	24th	19	—	—	—	—	3·5	—	—	—	12·0	17·0	1·0	—	—	—	—	—
5·3	9·50	3·0	19th	22	—	—	7	—	—	1·5	—	—	12·0	17·0	2·0	—	—	—	—	—
4·3	12·82	2·85	13th	21	—	—	—	—	12·0	2·0	—	3·0	6·0	10·0	11·0	—	0·5	—	0·5	—
3·6	5·60	1·0	19th	18	—	—	—	—	16·0	2·0	—	2·0	7·5	11·0	9·0	0·5	—	—	—	—
4·5	5·40	0·95	19th	19	—	—	—	—	9·5	3·0	—	3·0	11·5	10·0	6·5	—	—	—	—	—
5·2	6·37	2·0	19th	16	—	—	—	—	7·5	6·5	—	0·5	17·5	11·0	1·0	—	—	—	—	—
4·7	2·98	0·85	8th	10	—	—	—	—	10·0	4·0	—	1·0	22·5	5·5	2·0	—	—	—	—	—
4·2	5·05	1·26	—	15·0	—	—	·58	—	10·1	1·6	—	0·8	17·6	8·9	2·9	0·04	0·04	—	0·04	—

Long. 76° 42′ W. Height of Barometer Cistern above Sea, 3,800 feet.

4·0	5·45	1·60	3rd	15	—	—	—	—	13·0	4·0	—	—	8·0	—	4·0	—	4·5	—	7·5	7·0
3·5	3·62	0·76	16th	12	—	—	—	—	14·0	2·5	—	5·0	5·5	—	4·0	—	7·5	—	6·5	4·5
4·0	3·29	0·98	14th	10	—	—	—	—	16·5	3·5	—	—	4·5	0·5	—	—	9·5	—	4·5	7·0
4·0	4·35	0·90	2nd	16	—	—	—	—	9·5	3·0	—	—	6·5	—	5·0	—	2·5	—	5·0	11·0
4·5	19·04	6·15	17th	18	—	—	1·0	—	10·5	7·5	—	—	5·0	—	5·5	—	6·0	—	4·5	10·0
4·4	11·88	9·77	5th	9	—	—	—	—	13·0	3·5	—	9·0	8·5	—	5·5	—	3·5	—	4·0	8·5
4·0	8·76	5·60	23rd	10	—	—	1·0	—	19·5	2·0	—	—	7·5	0·5	7·0	—	3·0	—	3·0	10·0
4·2	19·72	4·74	1st	18	—	—	8·0	—	18·0	4·5	—	—	9·5	—	6·5	1·0	4·0	—	4·0	10·5
4·0	5·54	1·24	13th	13	—	—	11·0	—	14·0	5·0	—	1·0	8·0	—	4·5	1·0	1·0	—	1·0	14·5
4·2	11·78	1·62	22nd	23	—	—	9·0	—	12·5	11·0	—	0·5	11·5	—	8·0	0·5	—	—	1·0	9·5
4·1	13·74	2·16	10th	23	—	—	9·0	—	14·5	6·5	—	4·5	8·5	—	2·5	—	3·0	—	8·5	3·0
4·3	5·21	4·25	2nd	9	—	—	1·0	—	18·5	2·0	—	1·0	6·5	—	6·0	—	3·0	—	8·0	6·0
4·1	9·36	3·31	—	14·7	—	—	3·3	—	14·4	4·6	—	1·7	7·4	·1	4·8	·20	3·9	—	4·8	8·4

Long. 76° 56′ W. Height of Barometer Cistern above Sea, 245 feet.

2·0	1·86	0·5	1st	7	—	—	—	—	23·0	1·0	—	3·5	2·0	3·0	10·5	2·0	3·5	4·5	2·0	—
3·5	1·21	0·3	8th	5	—	—	—	—	15·5	9·5	—	1·0	4·0	1·0	11·0	1·5	5·0	1·5	3·0	—
2·3	1·13	0·7	9th	6	—	—	—	—	18·5	3·0	—	2·5	2·5	1·0	11·5	4·0	6·5	1·5	1·5	—
3·7	4·98	0·7	6th	9	—	—	2	—	14·5	4·5	1·0	1·5	0·5	—	12·5	3·0	10·5	1·0	1·0	—
4·0	4·98	2·31	17th	10	—	1·0	5	—	16·0	5·5	1·0	2·0	5·0	0·5	10·0	3·0	5·5	3·5	1·5	—
3·7	5·52	3·75	5th	7	—	—	4	—	17·0	4·0	—	2·0	3·0	1·0	17·5	1·5	0·5	1·5	3·0	—
4·2	7·33	5·70	23rd	5	—	—	4	—	13·5	7·5	—	0·5	5·0	0·5	14·0	2·0	3·5	0·5	4·0	1·0
4·2	7·43	2·15	1st	11	—	—	6	—	12·5	6·0	—	0·5	6·5	—	13·0	1·0	3·5	—	6·5	—
3·5	2·40	0·75	19th	10	—	—	—	—	14·5	4·5	—	1·0	6·5	—	13·0	0·5	6·0	—	3·0	—
4·0	9·50	1·94	14th	15	—	—	—	—	14·0	7·0	—	1·5	6·5	—	11·5	6·0	3·5	—	2·0	—
3·0	2·03	0·70	3rd	10	—	—	—	—	26·0	3·5	—	1·5	5·5	0·5	17·5	1·0	1·5	0·5	1·5	0·5
2·0	0·12	0·7	30th	2	—	—	—	—	20·0	1·0	—	4·0	9·5	—	2·0	1·0	5·0	—	8·5	1·0
3·3	4·04	1·68	—	8·08	—	0·08	1·75	—	17·0	4·7	0·1	1·7	4·7	0·6	12·0	2·2	4·5	1·2	3·1	·2

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Appendix

Annual Abstract of Meteorological Observations taken

NASSAU. Lat. 25° 5′ N.

Month.	Mean Pressure.	Air Temperature.							Tension of Vapour.	Relative Humidity.		
		Mean, 9 a.m.	Means of		Abs. Min.		Abs. Max.			Per Cent.	Min.	
			Min.	Max.	Temp.	Day.	Temp.	Day.		Mean.	Per Cent.	Day.
January - -	30·141	71·7	50·9	77·6	39·9	5th	84·7	15th	·573	70·0	56·6	3rd
February -	30·227	75·0	55·3	81·1	49·0	17th	85·3	25th	·625	70·8	51·8	28th
March - -	30·076	73·4	50·2	78·9	40·1	20th	88·0	27th	·526	58·6	49·3	1st
April - -	30·061	77·2	52·5	82·2	46·7	10th	89·5	27th	·659	69·8	52·5	24th
May - -	30·023	78·9	61·5	83·7	51·0	3rd	89·5	28th	·706	69·4	53·0	2nd
June - -	30·011	82·9	74·3	87·9	71·5	15th	93·3	11th	·885	73·6	61·4	27th
July - -	30·097	85·0	74·8	90·6	72·4	30th	92·6	31st	·840	67·2	55·9	19th
August - -	29·948	83·6	75·7	89·3	70·4	31st	93·5	19th	·853	72·8	61·9	16th
September -	29·967	82·6	74·1	87·2	70·0	21, 22nd	92·3	8th	·821	73·6	64·8	6th
October - -	29·955	81·0	73·9	85·9	69·7	30th	92·0	16th	·797	75·6	66·0	18th
November -	30·017	76·0	69·3	79·8	64·7	1st	84·8	8th	·601	67·4	50·6	22nd
December -	30·081	73·5	78·5	65·7	61·8	19th	85·0	23rd	·602	72·5	54·9	3rd
Mean -	30·052	76·7	65·9	82·5	58·9	—	89·2	—	·707	70·1	56·5	—

BERMUDA. Lat. 32° 17′ 40″ N.

January - -	30·105	65·2	56·2	70·2	48·0	20th	76·5	31st	·496	57·7	43·4	28th
February -	*	65·0	54·0	70·2	45·2	13th	80·8	22nd	·457	56·1	39·3	15th
March -	29·878	63·6	57·3	70·5	46·0	11th	76·5	4th	·361	56·0	38·4	17th
April - -	30·075	66·4	54·6	73·2	47·0	15th	80·0	25, 26th	·488	63·5	49·6	14th
May - -	30·021	72·1	58·0	78·3	52·0	10th	83·0	31st	·594	69·4	53·6	3rd
June - -	29·974	78·6	53·3	84·4	43·0	2nd	90·0	28th	·741	75·8	62·4	4th
July - -	30·200	82·0	58·8	91·9	53·5	3rd, 23rd	95·4	30th	·019	80·0	75·1	2nd
August - -	30·234	79·3	52·7	89·1	53·0	14, 29th	96·3	2nd	Wet bulb out of order.			
September -	30·096	79·5	55·3	86·9	46·5	1st	93·0	12th	Ditto		ditto.	
October - -	30·056	76·6	55·6	82·9	45·0	15th	89·0	2nd	·850	74·2	61·0	16th
November -	30·072	69·7	60·3	75·7	63·0	16th	75·0	1, 2, 10th	·603	63·9	58·7	13th
December -	30·053	65·3	54·8	71·0	45·0	25, 31st	76·4	26th	·548	77·5	51·7	31st
Mean -	30·063	71·9	55·9	78·8	49·3	—	83·4	—	·512	56·1	46·1	—

* Barometer broken.

FORT CANNING, SINGAPORE. Lat. 1° 16′ N.

January - -	29·844	82·3	67·4	95·0	65·0	8th	97·0	17th	·955	85·1	68·9	13th
February -	29·803	79·9	67·1	91·6	63·2	20th	96·2	10th	·919	90·0	57·0	6th
March -	29·827	80·7	67·9	90·6	67·0	21, 28th	95·0	31st	·963	90·0	72·8	28th
April - -	29·798	82·0	68·8	92·7	67·2	14th	95·2	5th	·953	81·5	76·0	6th
May - -	29·815	83·2	69·7	88·5	67·2	30th	95·8	5th	·990	86·0	60·0	14th
June - -	29·816	81·4	68·0	90·6	66·2	7th	94·8	18th	·929	84·9	77·6	11th
July - -	29·846	83·3	68·3	91·9	67·0	21st	94·4	5th	·910	74·8	72·6	29th
August - -	29·828	81·2	67·2	90·4	66·2	11th	93·6	16th	·874	79·2	78·4	14th
September -	29·852	83·0	68·1	90·6	66·2	30th	95·8	20th	·946	80·0	76·4	17th
October - -	29·846	83·4	68·1	93·4	65·4	4th	97·4	17th	·946	81·4	73·4	15th
November -	29·836	82·2	68·4	91·5	66·2	2nd	95·2	8th	·903	81·2	78·7	16th
December -	29·826	82·2	67·8	94·9	65·4	12th	95·4	17th	·902	80·2	78·4	25th
Mean -	29·828	82·0	68·1	91·8	66·0	—	95·5	—	·932	82·8	72·5	—

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No. X.—*continued.*

at Netley and Foreign Stations in the Year 1887.

Long 77° 21′ W. Height of Barometer Cistern above Sea, 47 feet.

Mean Amount of Cloudiness.	Rainfall.			Weather. Number of Days of								Wind. Means of Observations under each Point per Month.								
	Total.	Max.	Day.	Rain.	Snow.	Hail.	Thunder Storm.	Fog.	Clear Sky.	Overcast.	Gales.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Calm.
6·7	1·18	0·37	23rd	11·0	—	—	1·0	—	4·0	10·0	—	4·0	7·5	3·5	7·0	3·0	2·0	1·0	2·5	0·5
6·8	0·31	0·20	13th	9·0	—	—	—	—	2·0	11·0	—	2·0	6·0	13·0	6·5	1·5	—	—	—	—
6·0	1·15	0·92	17th	6·0	—	—	2·0	5·5	5·0	12·5	—	3·0	8·5	4·5	1·5	4·0	3·0	2·5	4·0	—
7·0	9·32	4·28	9th	8·0	—	—	3·0	—	5·5	13·5	—	2·0	5·0	9·0	2·5	7·5	—	0·5	3·0	0·5
8·0	6·93	1·40	22nd	13·0	—	—	7·0	—	0·5	21·5	—	7·5	6·5	4·0	1·5	2·5	3·0	1·0	4·0	1·5
9·4	11·93	3·62	13th	17·0	—	—	9·0	—	—	29·0	—	2·0	3·0	9·0	6·0	4·5	1·5	0·5	—	3·5
8·0	7·57	2·11	23rd	15·0	—	—	6·0	—	1·0	20·0	—	1·5	3·5	11·5	8·5	4·5	—	—	0·5	1·0
8·4	20·07	4·45	22nd	19·0	—	—	6·0	—	—	21·0	—	3·0	5·5	6·0	6·0	4·5	1·5	1·0	2·0	1·5
8·2	9·43	2·77	20th	17·0	—	—	5·0	—	—	18·0	—	2·0	6·0	8·5	8·0	3·0	—	—	—	2·5
8·3	8·01	0·94	15th	23·0	—	—	2·0	—	—	20·5	—	2·0	6·0	9·0	3·0	5·0	1·0	1·5	1·5	2·0
7·2	1·31	0·35	28th	12·0	—	—	—	—	2·0	15·0	—	8·0	10·5	5·5	0·5	0·5	—	0·5	3·5	1·0
7·1	2·00	0·98	26th	17·0	—	—	—	1·0	3·5	19·0	—	4·0	8·0	4·0	6·0	2·0	1·5	1·0	2·5	2·0
7·6	6·60	1·85	—	13·7	—	—	3·4	0·5	1·9	17·5	—	3·4	6·3	7·2	4·7	3·5	1·1	0·8	1·9	1·3

Long. 64° 47′ W. Height of Barometer Cistern above Sea, 151 feet.

6·5	6·28	2·10	15th	16·0	—	—	2·0	—	3·5	10·0	—	3·0	6·0	—	3·0	—	10·0	1·0	8·0	—
4·5	1·97	1·20	13th	5·0	—	—	—	—	6·0	—	—	1·0	9·0	1·0	1·0	1·0	8·0	1·0	6·0	—
5·0	2·96	0·90	24th	15·0	—	1·0	2·0	—	1·5	8·0	2·0	—	5·0	1·0	3·0	—	2·0	8·0	12·0	—
4·0	4·58	1·52	16th	4·0	—	—	4·0	—	3·0	2·0	—	—	9·0	—	3·0	—	9·0	1·0	8·0	—
4·5	9·10	2·70	29th	9·0	—	—	—	2·0	3·0	7·0	—	—	6·0	—	2·0	—	14·0	4·0	5·0	—
3·5	4·38	1·18	18th	10·0	—	—	1·0	—	17·0	2·0	—	—	6·0	—	1·0	—	21·0	1·0	1·0	—
4·0	2·08	0·97	20th	8·0	—	—	—	—	22·0	1·0	—	—	—	1·0	—	2·0	22·0	3·0	3·0	—
4·0	5·14	2·50	29th	14·0	—	—	2·0	—	11·0	4·0	—	—	6·0	—	1·0	—	14·0	5·0	5·0	—
4·5	2·31	0·77	3rd	16·0	—	—	—	—	9·0	5·0	—	2·0	20·0	1·0	2·0	—	5·0	—	—	—
4·5	2·35	0·57	15th	12·0	—	—	—	—	13·0	6·0	—	—	12·0	—	2·0	—	16·0	—	1·0	—
5·0	8·66	3·00	20th	15·0	—	—	—	—	8·0	6·0	1·0	—	5·0	1·0	1·0	—	19·0	4·0	—	—
6·0	2·48	0·28	4th	19·0	—	—	—	—	1·5	11·0	4·0	1·0	8·0	—	1·0	1·0	16·0	1·0	3·0	—
4·6	4·35	1·47	—	11·9	—	0·08	0·9	0·1	9·4	5·1	0·5	0·5	7·6	0·4	1·6	0·3	13·0	2·4	4·3	—

Long. 105° 53′ E. Height of Barometer Cistern above Sea, 110 feet.

3·4	9·74	2·0	21st	23·0	—	—	1	—	17·0	10·0	—	1·5	13·0	—	1·0	—	2·0	—	13·5	—
5·2	10·26	3·0	10th	19·0	—	—	5	—	9·0	9·0	—	—	7·0	—	0·5	—	3·0	—	17·5	—
3·9	5·41	0·85	9th	13·5	—	—	5	—	16·5	10·0	—	—	4·0	—	1·5	1·5	8·5	1·0	14·5	—
3·4	7·03	1·25	16th	17·0	—	—	6	1·5	17·5	9·0	—	—	1·0	—	0·5	0·5	8·0	3·5	16·5	—
4·0	6·95	1·56	26th	18·0	—	—	5	—	13·0	11·0	—	—	—	—	0·5	0·5	15·0	7·0	8·5	—
4·4	7·46	1·41	20th	18·0	—	—	4	—	15·0	13·0	—	—	—	—	1·0	2·0	16·5	3·5	7·0	—
4·0	10·79	6·38	28th	12·0	—	—	2	—	15·5	16·5	—	—	—	—	1·5	9·0	17·5	0·5	2·5	—
5·1	13·70	1·67	2nd	20·0	—	—	1	—	9·0	21·0	1·0	—	—	—	4·5	4·5	14·0	2·0	6·0	—
3·8	5·94	1·76	24th	12·0	—	—	1	—	15·0	11·0	—	—	—	—	—	5·0	18·5	1·5	5·0	—
4·4	7·38	1·91	21st	15·0	—	—	2	—	16·0	12·0	—	1·0	—	—	3·0	3·5	14·5	1·0	8·0	—
5·6	7·66	1·61	11th	17·0	—	—	3	—	10·0	20·0	—	—	—	—	1·0	—	8·5	3·5	17·0	—
5·3	13·42	3·23	24th	21·0	—	—	1	—	17·0	13·0	—	1·0	0·5	—	0·5	—	1·0	1·0	27·0	—
4·4	8·99	2·22	—	17·1	—	—	3·0	0·1	14·2	12·9	·08	2·9	2·1	—	1·3	2·2	10·6	1·9	11·9	—

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Appendix

Annual Abstract of Meteorological Observations taken

HONG KONG. Lat. 22° 16′ 20″ N.

Month.	Mean Pressure.	Air Temperature.							Tension of Vapour.	Relative Humidity.		
		Mean, 9 a.m.	Means of		Abs. Min.		Abs. Max.			Per Cent.	Minimum.	
			Min.	Max.	Temp.	Day.	Temp.	Day.		Mean.	Per Cent.	Day.
January	30·075	61·2	55·9	69·0	45·0	6th	76·0	15th	·447	74·0	45·0	6th
February	30·116	59·2	53·0	67·3	43·0	9th	74·0	14, 15, 14	·403	75·0	43·0	9th
March	30·039	64·1	58·6	72·3	53·0	18th	82·0	14th	·462	75·6	40·0	29th
April	29·953	72·3	66·3	77·7	57·0	2nd, 3rd	85·0	15th	·653	79·8	45·0	3rd
May	29·856	78·0	72·4	82·9	67·0	18th	89·0	28th	·753	76·2	44·0	14th
June	29·729	85·3	78·7	88·6	72·0	1st	92·0	28, 20, 30	·887	72·0	41·0	6th
July	29·857	84·5	78·5	88·5	76·0	5th	93·0	14th	·922	80·0	61·0	28th
August	29·775	84·0	78·3	88·5	75·0	17th	95·0	12th	·878	75·6	53·0	8th
September	29·731	84·9	78·9	89·3	75·0	18th	94·0	10th	·889	72·0	61·0	3rd
October	29·969	80·0	72·0	84·7	68·0	23rd	90·0	4th	·621	79·0	42·0	6th
November	30·077	72·6	64·8	78·3	61·0	27th	83·0	6th	·472	56·0	38·0	17th
December	30·171	65·5	59·2	73·7	45·0	31st	64·0	12th	·418	63·5	42·0	31st
Mean	29·929	74·3	68·0	80·1	61·4	—	84·7	—	·650	71·5	46·2	—

SANITARIUM, HONG KONG. Lat. 22° 16′ 20″ N.

January	*											
February												
March												
April												
May	—	—	—	—	55·0	6th	83·0	23rd	—	—	—	—
June	—	—	—	—	72·0	2nd	86·5	30th	—	—	—	—
July	—	—	—	—	74·0	24th	88·0	14th	—	—	—	—
August	—	—	—	—	71·0	26th	90·5	12th	—	—	—	—
September	—	—	—	—	69·0	28th	89·0	26th	—	—	—	—
October	—	—	—	—	86·0	1st	63·5	27th	—	—	—	—
November												
December												
Mean	—	—	—	—	71·1	—	83·4	—	—	—	—	—

* Barometer readings not recorded.

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No. X.—*continued.*

at Netley and Foreign Stations in the Year 1887.

Long. 114° 9′ 16″ E. Height of Barometer Cistern above Sea, 18 feet.

Mean Amount of Cloudiness.	Rainfall.			Weather.								Wind.								
				Number of Days of								Means of Observations under each Point per Month.								
	Total.	Max.	Day.	Rain.	Snow.	Hail.	Thunder Storm.	Fog.	Clear Sky.	Overcast.	Gales.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W	Calm.
7·6	8·75	3·40	26th	13	—	—	—	—	2·0	9·0	—	2·0	4·0	11·0	5·0	1·0	1·0	3·0	2·0	2·0
6·0	1·11	0·34	1st	8	—	—	—	—	10·0	12·0	—	2·0	4·0	12·0	2·0	—	—	2·0	2·0	4·0
6·5	3·08	1·11	17th	10	—	—	—	—	9·0	16·0	—	3·0	7·0	9·0	9·0	—	—	1·0	—	2·0
6·6	4·30	1·00	11th	11	—	—	1·0	—	6·0	13·0	—	5·0	10·0	5·0	2·0	1·0	—	1·0	3·0	3·0
5·5	3·06	0·90	30th	12	—	—	—	—	2·5	9·5	—	1·5	6·5	10·0	4·5	1·0	3·5	1·0	—	3·0
6·3	5·59	1·40	10th	23	—	—	—	—	4·0	9·0	—	—	—	2·0	4·5	9·0	13·5	—	—	1·0
7·1	15·03	2·30	29th	24	—	—	—	—	2·5	8·5	—	—	0·5	5·5	8·5	4·5	4·5	1·0	0·5	6·0
5·5	16·22	5·05	15th	14	—	—	—	—	12·0	5·0	0·5	—	0·5	4·5	5·5	5·5	7·5	4·0	1·5	2·0
6·1	11·52	5·70	17th	18	—	—	—	—	5·5	6·5	2·0	1·0	5·5	10·5	6·5	1·5	1·5	1·0	1·5	1·0
2·4	2·88	1·25	17th	5	—	—	—	—	24·0	2·0	—	1·5	14·0	10·0	2·0	—	—	0·5	1·0	2·0
3·5	0·87	0·45	29th	5	—	—	—	—	18·0	5·0	—	4·5	14·5	8·5	—	—	—	1·0	1·5	—
3·5	0·85	0·65	2nd	3	—	—	—	—	17·0	6·0	—	7·0	15·0	7·0	2·0	—	—	—	—	—
5·5	6·10	1·96	—	12·1	—	—	0·3	—	9·3	8·4	·2	2·3	6·8	7·9	4·3	1·9	2·6	1·0	1·1	2·2

Long. 114° 9′ 16″ E. Height of Barometer Cistern above Sea, 905 feet.

6·5	3·07	1·20	30th	10·0	—	—	1·0	3·0	4·0	9·0	1·0	9·0	2·0	1·0	1·0	5·0	5·0	4·0	4·0	—
6·1	5·05	1·35	10th	20·0	—	—	—	2·0	6·5	5·5	4·0	—	—	1·0	0·5	19·5	4·0	2·0	2·5	0·5
6·7	13·26	2·50	29th	22·0	—	—	3·0	7·0	3·0	11·0	4·0	1·5	0·5	—	7·5	7·0	2·5	—	7·5	4·5
5·1	15·62	3·50	15th	14·0	—	—	1·0	1·0	14·5	7·5	1·0	—	2·5	0·5	4·5	13·5	2·0	—	4·5	3·5
5·2	12·45	4·20	17th	19·0	—	—	1·0	—	7·0	5·5	5·0	8·5	2·5	3·0	1·0	6·0	2·0	1·5	2·0	3·5
2·8	1·56	0·56	19th	4·0	—	—	1·0	—	22·5	2·5	—	16·6	6·0	3·0	1·5	—	—	—	0·5	1·0
5·4	8·50	2·21	—	14·8	—	—	1·1	2·1	9·6	6·8	2·5	5·9	2·2	2·2	2·6	8·5	2·6	0·6	3·5	2·1

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Appendix

Summary of Results of Meteorological Observations

Stations.	Altitude, above Sea level.	Latitude.	Longitude.	Air Pressure.	Air Temperature.							Tension of Vapour.	Relative Humidity.			
					Mean, 9 a.m.	Means of		Abs. Min.		Abs. Max.			Per Cent.	Min.		
						Min.	Max.	Temp.	Date.	Temp.	Date.		Mean.	Per Cent.	Date.	
Mediterranean:	ft.	° ′ ″	° ′ ″													
Gibraltar -	53	36 6 20 N.	5 20 53 W.	30·058	63·6	57·6	69·6	37·7	25 Dec.	88·5	10 Aug.	·513	80·9	48 0	11 June	
Malta -	70	35 53 49 N.	14 30 54 E.	29·968	67·2	62·4	69·9	46·0	17 Jan.	95·4	24 July	·496	71·0	38·0	2 June	
Scutari -	60	41 0 0 N.	29 3 0 E.	29·983	60·2	50·7	70·0	25·6	22 Jan.	100·4	16 Aug.	·380	68·1	34·4	17 July	
Cyprus:																
Nicosia -	592	35 10 50 N.	33 21 15 E.	29·061	58·4	43·2	67·5	28·0	22 Jan.	97·2	8 May	·301	65·8	24·0	7 May	
Polymedia	460	34 40 0 N.	32 2 0 E.	29·947	69·9	48·8	78·8	28·0	26 Jan.	102·2	10 June	·323	77·9	33·0	23 Apr.	
Troodos -	5,720	34 55 0 N.	32 54 0 E.	29·195	67·02	54·1	79·1	44·0	15 June	95·0	24 Aug.	·461	69·6	22·0	22 Aug.	
Natal, "Fort Napier."	2,220	29 3 0 S.	30 2 0 E.	29·929	66·7	53·0	77·7	35·2	13 June	104·8	12 Nov.	·467	68·3	26·0	11 Dec.	
Sierra Leone -	224	8 29 30 N.	13 9 17 W.	29·889	78·0	70·1	98·9	60·4	26 May	105·0	13 Apr. 3 May	·883	88·7	61·2	3 Nov.	
West Indies:																
Barbados -	30	13 7 39 N.	59 40 8 W.	30·000	81·5	73·0	83·8	70·0	9 Dec.	89·0	8 Oct.	·770	71·3	48·0	4 Apr.	
Newcastle, Jamaica.	3,800	15 6 0 N.	76 42 0 W.	30·000	65·3	Instruments have not yet been replaced.										
Up. Park Camp.	245	17 59 0 N.	76 56 0 W.	29·952	83·8	66·8	84·2	51·0	11 Mar.	96·0	21 Mar.	·751	61·5	45·0	16 Mar.	
Nassau, Bahamas.	47	25 5 0 N.	77 21 0 W.	30·052	76·7	65·9	82·5	39·9	5 Jan.	93·5	19 Aug.	·707	79·1	49·3	1 Mar.	
Bermuda -	151	32 77 40 N.	64 47 0 W.	30·063	71·9	55·9	78·8	45·0	15 Oct. 31 Dec.	96·3	2 Aug.	·512	56·1	38·4	17 Mar	
Singapore, Fort Canning.	110	1 16 0 N	105 53 0 E.	29·828	82·0	68·1	91·8	63·2	20 Feb.	97·4	17 Oct.	·932	82·8	57·0	6 Feb.	
Hong Kong -	18	22 16 20 N.	114 9 16 E.	29·929	74·3	68·0	80·1	43·0	9 Feb.	95·0	12 Aug.	·650	71·5	38·0	17 Nov.	
Sanitarium -	905	22 16 20 N.	114 9 16 E.	—	—	—	—	55·0	6 May	90·5	12 Aug.	—	—	—	—	

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No. X.—*continued.*

taken at Foreign Stations in the Year 1887.

Mean Amount of Cloudiness.	Rainfall.			Weather.								Wind.									Remarks. No. of Months in which Observations were taken.
				Number of Days of								Means of Observations under each Point per Month.									
	Total.	Max.	Date.	Rain.	Snow.	Hail.	Thunder-storm.	Fog.	Clear sky.	Overcast.	Gales.	N.	N.E.	E.	S.E.	S.	S.W.	W.	NW.	Calm.	
3·3	44·66	6·48	19 Apr.	7·3	—	—	0·1	—	17·7	4·4	1·8	0·04	3·0	9·1	0·3	0·1	0·4	9·8	6·8	0·2	12 months.
4·4	21·12	5·45	19 Oct.	6·1	—	0·1	0·6	—	11·3	7·0	—	1·8	5·0	1·4	5·7	0·8	3·9	1·7	10·0	—	12 „
4·9	31·76	2·05	30 Aug.	10·0	0·92	0·35	1·0	0·5	12·83	10·37	0·25	4·82	8·79	2·92	0·75	3·25	4·79	1·0	0·12	3·87	12 „
4·2	5·86	0·85	13 Jan.	6·4	0·2	0·2	0·8	—	13·5	7·2	2·2	2·5	4·8	7·4	1·7	1·4	2·0	6·1	3·0	0·1	5 „
3·9	14·19	2·56	4 Dec.	3·1	—	—	1·0	—	9·0	3·0	—	3·9	2·0	3·4	1·2	5·7	1·5	7·2	1·6	0·05	9 „
3·04	2·06	0·45	1 Aug. 11 Sept.	1·08	—	—	0·2	0·2	13·9	2·4	—	2·7	1·8	4·1	2·1	4·5	0·6	4·0	3·8	—	5 „
4·0	46·36	4·06	2 Mar.	8·1	—	0·1	3·0	0·4	15·7	11·1	2·7	2·3	4·2	5·5	3·8	2·8	0·9	0·7	1·7	8·4	12 „
5·5	159·21	5·00	13Sept.	11·9	—	—	6·1	—	11·6	10·1	—	6·6	0·9	6·0	1·1	5·5	1·6	6·6	1·0	1·1	12 „
4·2	60·58	3·0	19 July	15·0	—	—	0·58	—	10·1	1·6	—	0·8	17·6	8·2	2·9	0·04	0·04	—	0·04	—	12 „
4·1	112·38	9·77	5 June	14·7	—	—	3·3	—	14·4	4·6	—	1·7	7·4	0·1	4·8	0·20	3·9	—	4·8	8·4	12 „
3·3	48·49	5·70	23 July	8·08	—	0·08	1·7	—	17·0	4·7	0·1	1·7	4·7	0·6	12·0	2·2	4·5	1·2	3·1	0·2	12 „
7·3	79·21	4·45	22 Aug.	13·7	—	—	3·4	0·5	1·9	17·5	—	3·4	6·3	7·2	4·7	3·5	1·1	0·8	1·9	1·3	12 „
4·6	52·29	3·00	20 Nov.	11·9	—	0·08	0·9	0·1	9·4	5·1	0·5	0·5	7·6	0·4	1·6	0·3	13·0	2·4	4·3	—	12 „
4·4	105·74	6·38	28 July	17·1	—	—	3·0	0·1	14·2	12·9	0·08	2·9	2·1	—	1·3	2·2	19·6	1·9	11·0	—	12 „
5·5	73·26	5·70	17 Sept.	12·1	—	—	0·8	—	9·3	8·4	0·2	2·3	6·8	7·9	4·3	1·9	2·6	1·0	1·1	2·2	12 „
5·4	51·01	4·20	17 Sept.	14·8	—	—	1·1	2·1	9·6	6·8	2·5	5·9	2·2	2·2	2·6	8·5	2·6	0·6	3·5	2·1	6 „

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APPENDIX No. XI.

THE PARKES' MEMORIAL PRIZE.

Surgeon-General Sir T. LONGMORE, Kt., C.B., *President of Committee.*
Surgeon-Major J. LANE-NOTTER, M.D., *Treasurer.*
Surgeon A. M. DAVIES, *Secretary.*

Prize Essay Gold Medallists.

1883. Surgeon R. J. POLDEN, Indian Medical Service.
1886. Surgeon ANDREW DUNCAN, M.D., Indian Medical Service.

The following is the subject for the next prize:—

ON THE INFLUENCE OF SOIL AS A FACTOR IN THE PRODUCTION OF DISEASE, ESPECIALLY IN HOT CLIMATES. TO BE ILLUSTRATED, AS FAR AS PRACTICABLE, BY FACTS PERSONALLY OBSERVED BY THE WRITER.

The Prize is One Hundred Pounds in Money and a Gold Medal, and is awarded Triennially.

The Competition is open to all Medical Officers of the Army, Navy, and Indian Services of Executive Rank on full pay, with the exception of the Assistant Professors of the Army Medical School during their term of Office. Essays to be sent to the Secretary of the "Parkes' Memorial Fund," Royal Victoria Hospital, Netley, on or before the 31st day of December 1891. Each Essay to have a Motto, and to be accompanied with a sealed envelope bearing the same Motto and containing the name of the Competitor.

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APPENDIX No. XII.

THE ALEXANDER MEMORIAL FUND.

COMMITTEE.

Director-General Sir T. CRAWFORD, K.C.B., M.D., Hon. Surgeon to the Queen, *President*.
Surgeon-General W. A. MACKINNON, C.B.
Surgeon-General T. G. BALFOUR, M.D., F.R.S., Hon. Physician to the Queen.
Surgeon-General Sir T. LONGMORE, C.B., Hon. Surgeon to the Queen, Professor of Military Surgery.
Deputy Surgeon-General J. A. BOSTOCK, C.B., Hon. Surgeon to the Queen.
Brigade-Surgeon ALFRED F. S. CLARKE, M.D.
Inspector-General of Hospitals, R. LAWSON.
Surgeon-General J. IRVINE, M.D., Hon. Physician to the Queen.

Surgeon-Major W. JOHNSTON, M.D., *Honorary Secretary*.

PRIZE ESSAY GOLD MEDALLISTS.

1870. Assistant Surgeon A. B. R. MYERS, Coldstream Guards.
1873. Surgeon F. H. WELCH, Medical Department.
1876. Surgeon-Major J. H. PORTER, Medical Department.
1879. Surgeon JOHN MARTIN, Medical Department.
1882. Surgeon-Major F. H. WELCH, Medical Department.
1885. Surgeon JOHN MARTIN, Medical Staff.
1888. Surgeon ROBERT HAMMILL FIRTH, Medical Staff.

The Committee hereby intimate that the prize of 50*l.* and Gold Medal of the value of 10*l.* has been awarded to Surgeon Robert Hammill Firth, F.R.C.S. Eng., Medical Staff, for the best Essay on "The Relations between the Food and Work of the British Soldier."

The subject for the next competition is "The Use of Drugs in the Treatment of Disease in the Army: the Principles on which Medicines should be selected so as to meet the requirements of Field Service."

Essays to be despatched so as to reach the President of the Committee on or before the 31st December 1890.

Essays are to be legibly and clearly written, superscribed with a brief motto, and accompanied by a sealed envelope similarly superscribed, containing the name and address of the author.

No essay shall exceed in length fifty pages of ordinary printed octavo, which may be estimated as amounting to 20,000 words (a page of octavo containing about 400 words). This limit to be exclusive of tables which may be added in the form of appendices.

The competition is limited to executive medical officers of the Army on full pay, but Assistant Professors at Netley are not allowed to compete while so employed.

The essays of unsuccessful competitors will be returned on application to the Honorary Secretary.

W. JOHNSTON, M.D., Surgeon-Major, Hon. Sec.

Medical Division, War Office, 18, Victoria Street, S.W.,
March 19th, 1888.

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